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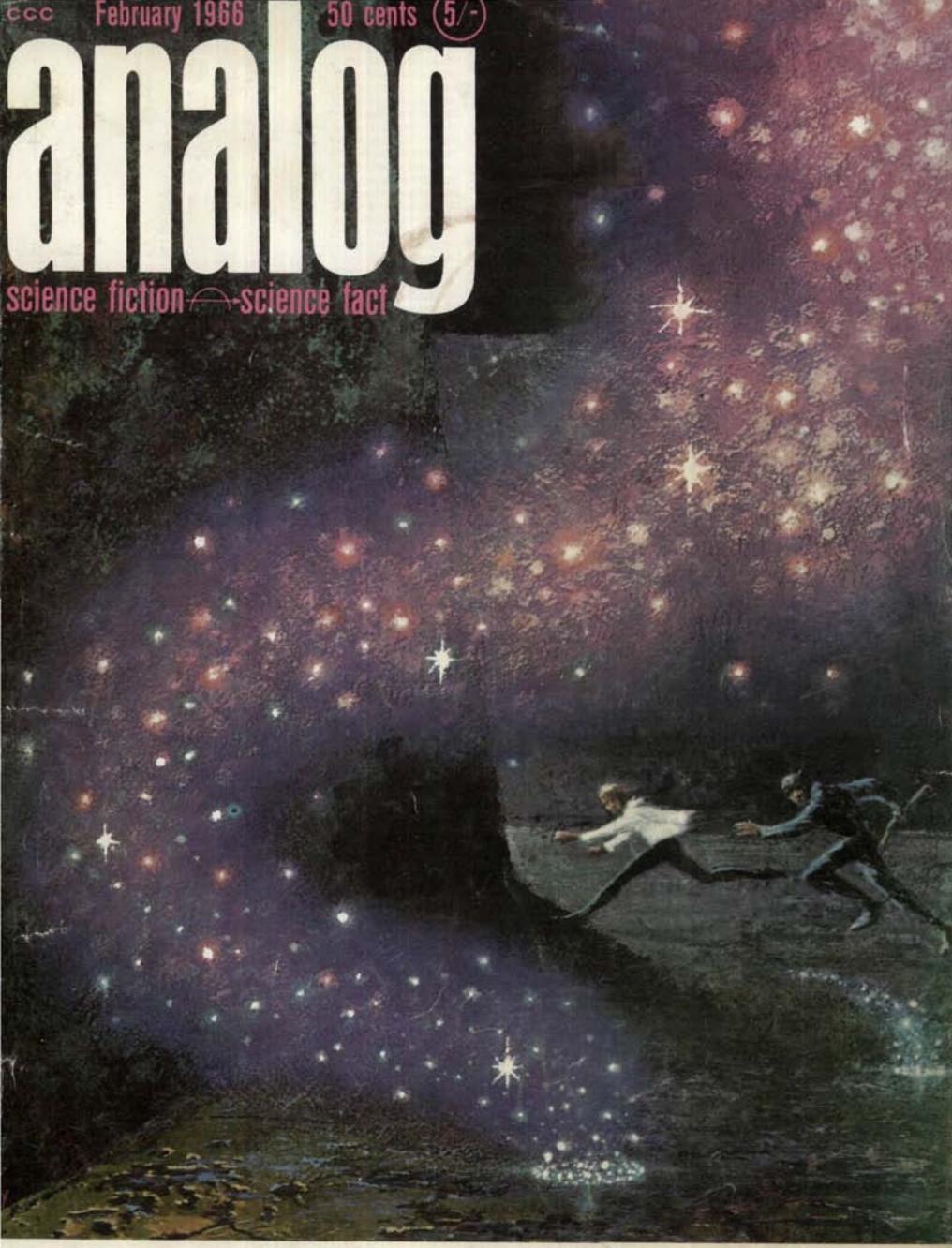

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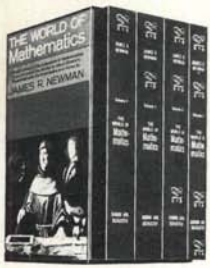

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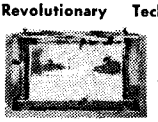

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Technology's advance can't be measured in years; it must be measured in terms of ideas and viewpoint-changes.

The use of solid-state devices is The Big Thing these days—to an extent that they are, sometimes, used when there are a variety of other ways of doing the same job better and cheaper. Technology, like every other field of human endeavor, is run by human beings, with a human tendency toward fads and fetishes. Electronics is sort of automatically assumed to make anything Better and More Modern. Which may make some gadget sell better—but doesn't make it better always. An old-fashioned steel spring, a couple of stamped brass gears, a simple escapement, and a steel-stamping gong still produce a better egg-timer than the latest marvel of solid-state electronics.

Human beings have a nearly inescapable tendency to use their past experiences as the Laws of the Universe—and their familiar viewpoints as The Way Things Are And Will Always Be. When something finally does shove, jolt, or kick them out of an old viewpoint—there is, then, a tendency to go hog-wild on the new approach.

This is rather apt to obscure what's really happened.

One of the biggest changes in electrical engineering and electronics between, say, 1939 and 1966, came in quite largely due to something entirely different from the apparent cause. It wasn't solid-state discoveries that caused it—but a shift of viewpoint. And the shift came principally from the work with sonar, radar, and nucleonics—with electronic instrumentation, rather than the instrumentalities used for that instrumentation. Perhaps an equally important force in that change was the development of the great digital computers.

When I started working with electronic circuits as a hobbyist, I was chiefly concerned with hi-fi and ham radio—*the* fields of electronic interest in the 1940 period. The interest was in frequencies. The capabilities of components were rated in frequencies, because that was what everybody knew electric currents were made up of.

I've just been reading a standard handbook, sold at most electronic

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supply stores, intended for hobbyists and electronic engineers. Its primary interest is silicon controlled rectifiers—SCR's. It's put out by General Electric. International Rectifier and a variety of other companies put out generally similar handbooks, giving the ratings of the units they manufacture, and general discussion of the theory of the SCR, and circuit applications.

The fascinating thing, to me, is that throughout this book on electronic circuits, there are only perhaps a dozen mentions of the term "frequency"!

Radar and Sonar, I suspect, started it; the radar people were interested in generating sharp, very brief, extremely-high-energy bursts of power—very short, very sharp, and very hard, so that they could know exactly how long the burst of energy was, and could measure exactly how long it took to get there and get back. They needed to know precisely—to a fraction of a microsecond—when a burst started.

Consider the difference between the sound produced by an organ pipe, and that produced by a piano; the organ pipe is excited by a blast of air, which gradually builds up a resonant column of air in the pipe, and the note grows stronger. When does it *start?* A piano, producing the same pitch, does so by means of a padded mallet that abruptly strikes a resonant string. You can say *when* that starts a lot more accurately.

Of course, if you have a hardened steel hammer strike a hard steel bar, the precise instant of start can be defined even more accurately.

Up to the time radar and sonar forced this interest in exceedingly sudden bursts of energy, electronic engineers and mathematicians had talked, and thought, almost exclusively in terms of *frequencies*—a concept implying a continuing wave chain of many repetitious cycles. Sound had been analyzed entirely in terms of a frequency system. An oscilloscope was rated in terms of the frequency of signals it could handle without fall-off in response.

With radar and sonar the need for a different analytical approach began. The digital calculator engineers had a similar change of viewpoint; they did *not* want continuing signals; they wanted signals that *began* and *ended,* and did it sharply. Their ideal signal was a perfectly square-cornered square wave, with no frequency whatever about it. The relays they used in early digital computers gave an unsatisfactory approximation of that sort of signal; sadly, relay contacts, when they hit, have a tendency to bounce. That does yield a frequency, a repetitiousness, that caused the computer engineers headaches.

Moreover, the signals they

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worked with had no pattern of repetition, as a frequency does. A relay might be called on to switch one hundred times in one minute . . . and then not at all for half an hour, then once, then a ten-minute wait, and a sudden flurry of activity.

In nucleonics, too, men were dealing with sudden, instantaneous, individual signals that had to be recognized as separate individuals, and counted. The familiar irregular *tic . . . tic-tic-tic-tic—tic—tic-tic—tic—tic—tictictic-tic* of a Geiger counter doesn't have a frequency. And the nuclear engineers had to count at rates running up into tens of thousands per second.

The whole mental approach of frequency had to be dropped. Instead, serious study of *pulses,* of individual bursts of energy, became essential. The methods required to handle pulses were totally different—mechanically, electronically, and mathematically.

They used to talk about the "frequency response" of an oscilloscope; with the increasing importance of pulses, the rating changed entirely—now it's "rise time".

In 1940, fast-acting switches and switching circuits operated in less than a millisecond. By 1945, the combined wartime pressures of radar, sonar and nucleonics had forced the electronics people to deal regularly with microsecond switching, and they were acutely unhappy with the snaillike pace of circuits that couldn't respond to pulses in less than 0.1 microsecond.

Now, of course, nanosecond circuitry is standard. Those silicon controlled rectifiers are electronic switches; they're valuable because they can handle enormous power (G.E.'s C8ON, for instance, switches 235 amperes at 800 volts), but they're considered pretty slow devices—big, clumsy, but powerful. They take as much as 0.5 microseconds to turn on. They are about an inch and a quarter in diameter, and about 1.5″ high.

Tenth-nanosecond circuitry is commercially available. They don't talk about frequency.

The circuits used, now, are possible *because men learned to think differently*. Much of what has been done has been attributed to—considered caused by—the availability of solid-state devices.

That, I think, is false. For one thing, the transistor, when originally developed, was a decidedly low-speed device; the junction transistor, developed shortly after Bell Labs introduced the original point-contact type (now almost abandoned as obsolete!) was even slower. Vacuum tubes were—and are!—faster.

Moreover, the receiving gadget in the wartime radar sets depended on a silicon diode crystal as the detector—i.e., solid-state devices *were* available before the real work in pulse-engineering began. The

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THE SEARCHER / James H. Schmitz

The Searcher wasn't exactly smart, or intelligent—but it had immense potentialities. And unbreakable determination to gain what it sought—

It was night in that part of the world of Mezmiali—deep night, for much of the sky was obscured by the dense cosmic dust cloud called the Pit, little more than two light-years away. Overhead, only a scattering of nearby stars twinkled against the sullen gloom of the cloud. Far to the east, its curving edges were limned in brilliance, for beyond it, still just below the horizon, blazed the central sun clusters of the Hub.

The landscaped private spaceport was well-lit but almost deserted. A number of small ships stood about in their individual stations, and two watchmen on a pair of float scooters were making a tour of the grounds, moving along unhurriedly twenty feet up in the air. They weren't too concerned about intruders—the ships were locked and there was little else of value around to steal. But their duties included inspecting the area every two hours, and they were doing it.

One of them checked his scooter suddenly, said through his mike, "Take a look at Twenty-two."

His companion turned his head in the indicated direction. The ship at Station Twenty-two was the largest one here at present, an interstellar yacht which had berthed late in the afternoon, following an extensive pleasure cruise. He stared in surprise, asked, "Nobody onboard, is there?"

The first watchman was checking his list. "Not supposed to be until tomorrow! She's getting a standard overhaul then. What do you suppose that stuff is?"

The stuff he referred to looked like a stream of pale, purple fire welling silently out of the solid hull of the yacht, about halfway up its side. It flowed down along the side of the ship, vanishing as it touched the ground—appeared actually to be pouring on unchecked through the base of Station Twenty-two into the earth. Both men had glanced automatically at the radiation indicators on the floats and found them

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Kelly Freas

reassuringly inactive. But it was a puzzling, eerie sight.

"It's new to me!" the other man said uneasily. "Better report it right away! There might be somebody on board, maybe monkeying with the engines . . . Wait a moment. It's stopping!"

They looked on in silence as the last of the fiery flow slid down the yacht, disappeared soundlessly into the station's foundation.

The first watchman shook his head.

"I'll call the super," he said. "He'll . . . ."

A sharp whistling rose simultaneously from the two radiation indicators. Pale fire surged out of the ground beneath the floats, curved over them, enclosing the men and their vehicles. For a moment, the figures of the watchmen moved convulsively in a shifting purple glow; then they appeared to melt, and vanished. The fire sank back to the ground, flowed down into it. The piercing clamor of the

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radiation indicators faded quickly to a whisper and ceased.

The scooters hung in the air, motionless, apparently undamaged. But the watchmen were gone.

Eighty yards underground, the goyal lay quiet while the section it had detached to assimilate the two humans, who had observed it as it left the ship, returned and again became a part of it. It was a composite of billions of units, an entity now energy, now matter, vastly extensible and mobile in space, comparatively limited in the heavy mediums of a planet. At the moment, it was close to its densest material form, a sheet of unseen luminescence in the ground, sensor groups probing the spaceport area to make sure there had been no other witnesses to its arrival on Mezmiali.

There appeared to have been none. The goyal began to drift underground towards a point on the surface of the planet about a thousand miles from the spaceport.

And, about a thousand miles away, in the direction the goyal was heading, Danestar Gems raked dark-green fingernails through her matching dark-green hair, and swore nervously at the little spy screen she'd been manipulating.

Danestar was alone at the moment, in a small room of the University League's Unclassified Specimens Depot on Mezmiali. The Depot was composed of a group of large, heavily structured, rather ugly buildings, covering about the area of an average village, which stood in the countryside far from any major residential sections. The buildings were over three centuries old and enclosed as a unit by a permanent energy barrier, presenting to the world outside the appearance of a somewhat flattened black dome which completely concealed the buildings.

Originally, there had been a fortress on this site, quickly constructed at the time Mezmiali was subject to periodic attacks by space raiders—human and alien. The ponderous armament of the fortress, designed to deal with such enemies, had long since been dismantled; but the basic buildings remained, and the old energy barrier was the one still in use—a thing of monstrous power, retained only because it had been simpler and less expensive to leave it in place than to remove it.

Nowadays, the complex was essentially a warehouse area with automatic maintenance facilities; an untidy giant museum of current and extinct galactic life. It stored mineral, soil and atmosphere samples—almost anything, in fact, that scientific expeditions, government exploration groups, prospectors, colonial workers, or adventuring private parties were likely to pick up in space or on strange worlds. Anything considered of sufficient interest to warrant detailed analysis of its nature and properties

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was handed over to the University League. For a century the League had struggled—and never quite succeeded—to keep up with the material provided it for study in this manner. Meanwhile, the specimens continued to come in and were routed into special depots for preliminary cataloguing and storage. Most of them would turn out to be without interest, or of interest only to the followers of some esoteric branch of science. A relatively very small number of items, however, eventually might become very valuable, indeed, either because of the new scientific information they would provide or because they could be commercially exploited, or both. Such items had a correspondingly high immediate sales value as soon as their potential qualities were recognized.

Hence the Unclassified Specimens Depots were, in one way or another, well protected areas—none of them more impressively so than the Mezmiali Depot. The lowering black barrier enclosing it also served to reassure the citizenry of the planet when rumors arose, as they did periodically, that the Depot's Life Bank vaults contained dormant alien monstrosities such as human eyes rarely looked upon.

But mainly the barrier was there because the University League did not want some perhaps priceless specimens to be stolen.

That was also why Danestar Gems was there.

Danestar was a long-waisted, lithe, beautiful girl, dressed severely in a fitted black coverall suit and loose, short, white jacket, the latter containing numerous concealed pockets for the tools and snooping devices with which she worked. The wide, ornamental belt enclosing the suit under the jacket similarly carried almost indetectable batteries of tiny control switches. Her apparently frivolous penchant for monocolor make-up—dark green at the moment: green hair and lashes, green eyes, lips, nails, all precisely the same shade—was part of the same professional pattern. The hair was a wig, like a large, flowing, soft helmet, designed for Danestar personally, with exquisite artistry, by a stylist of interstellar fame; but beneath its waves was a mass of miniature gadgetry, installed with no less artistry by Danestar herself. On another day, or another job, depending on the purpose she was pursuing, the wig and other items might be sea blue, scarlet, or a somewhat appalling pale pink. Her own hair was dark brown, cut short. In most respects, Danestar actually was a rather conservative girl.

For the past ten minutes, she had been trying unsuccessfully to contact her colleague, Corvin Wergard. Wergard's last report, terminated abruptly, had reached her from another section of the Depot. He'd warned her that a number of armed men were trying to close in

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on him there and that it would be necessary for him to take prompt evasive action.

Danestar Gems and Corvin Wergard were employees of the Kyth Interstellar Detective Agency, working in the Depot on a secret assignment for University League authorities. Officially, they had been sent here two weeks before as communications technicians who were to modernize the Depot's antiquated systems. Danestar was, as a matter of fact, a communications expert, holding an advanced degree in the subject. Corvin Wergard had a fair working knowledge of communication systems; but they were not his specialty. He was a picklock in the widest sense. Keeping him out of a place he wanted to get into, or look into, was a remarkably difficult thing to do.

Their working methods differed considerably. Danestar was an instrument girl. The instruments she favored were cobwebby miniatures; disassembled, all fitted comfortably into a single flat valise which went wherever Danestar did. Most of them she built herself, painstakingly and with loving care like a fly fisherman creating the gossamer tools of his hobby. Next to them, their finest commercial equivalents looked crude and heavy —not too surprisingly, since Danestar's instruments were designed to be handled only by her own slender, extremely deft fingers. On an operation, she went about, putting out ten, twenty, fifty or a hundred eyes and ears, along with such other sensors, telltales and recorders of utterly inhuman type as were required by the circumstances, cutting in on established communication lines and setting up her own, masked by anti-antispying devices. In many cases, of course, her touch had to be imperceptible; and it almost always was. She was a confirmed snoop, liked her work, and was very good at it.

Wergard's use of tools, on the other hand, was restricted to half a dozen general-utility items, not particularly superior to what might be expected of the equipment of any enterprising and experienced burglar. He simply knew locks and the methods used to protect them against tampering or to turn them into deadly traps inside and out; and, by what might have been in part an intuitive process of which he was unaware, he knew what to do about them, whether they were of a type with which he was familiar or not, almost in the instant he encountered them. To observers, he sometimes appeared to pass through the ordinary run of locked doors without pausing. Concealed alarms and the like might delay him a minute or two; but he rarely ran into any contrivance of the sort that could stop him completely.

The two had been on a number of previous assignments together

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and made a good team. Between them, the Unclassified Specimens Depot became equipped with a satisfactorily comprehensive network of Danestar's espionage devices within twenty-four hours after their arrival.

At that point, a number of complications made themselves evident.

Their principal target here was the Director of the Depot, Dr. Hishkan. The University League had reason to believe—though it lacked proof—that several items which should have been in the Depot at present were no longer there. It was possible that the fault lay with the automatic storage, recording, and shipping equipment; in other words, that the apparently missing items were simply not in their proper place and would eventually be found. The probability, however, was that they had been clandestinely removed from the Depot and disposed of for profit.

In spite of the Depot's size, only eighteen permanent employees worked there, all of whom were housed in the Depot itself. If any stealing was going on, a number of these people must be involved in it. Among them, Dr. Hishkan alone appeared capable of selecting out of the vast hodgepodge of specimens those which would have a genuine value to interested persons outside the University League. The finger of suspicion pointed at him.

That made it a difficult and delicate situation. Dr. Hishkan had a considerable reputation as a man of science, with friends in high positions within the League. Unquestionable proof of his guilt must be provided before accusations could be made.

Danestar and Corvin Wergard went at the matter unhurriedly, feeling their way. They would have outside assistance available, if needed, but had limited means of getting information out of the Depot. Their private transmitter could not drive a message through the energy barrier, hence could be used at most for a short period several times a day when air trucks or space shuttles passed through the entrance lock. The Depot's communicators were set up to work through the barrier, but they were in the main control station near the entrance lock and under observation around the clock.

Two things became clear almost immediately. The nature of their assignment here was suspected, if not definitely known; and every U-League employee in the Depot, from Dr. Hishkan on down, was involved in the thefts. It was not petty pilfering but a well-organized operation with established outside contacts and with connections in the League to tip them off against investigators.

Except for Wergard's uncanny ability to move unnoticed about an area with which he had familiarized himself almost as he chose, and

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Danestar's detection-proof instrument system, their usefulness in the Depot would have been over before they got started. But within a few days, they were picking up significant scraps of information. Dr. Hishkan did not intend to let their presence interfere with his activities; he had something going on too big to postpone until the supposed communications technicians gave up here and left. In fact, the investigation was forcing him to rush his plans through, since he might now be relieved of his position as head of the Depot at any time, on general suspicions alone.

They continued with the modernization of the communications systems, and made respectable progress there—it was a three-months' job, so there was no danger they would get done too quickly with it. During and between work periods, Danestar watched, listened, recorded; and Wergard prowled. The conspirators remained on guard. Dr. Hishkan left the Depot for several hours three times in two weeks. He was not trailed outside, to avoid the chance of a slip which might sharpen his suspicions. The plan was to let him make his arrangements, then catch him in the act of transferring University League property out of the Depot and into the hands of his contacts. In other respects, he was carrying out his duties as scientific director in an irreproachable manner.

They presently identified the specimen which Dr. Hishkan appeared to be intending to sell this time. It seemed an unpromising choice, by its looks a lump of asteroid material which might weigh around half a ton. But Dr. Hishkan evidently saw something in it, for it had been taken out of storage and was being kept in a special vault near his office in the main Depot building. The vault was left unguarded—presumably so as not to lead to speculations about its contents—but had an impressive series of locks, which Wergard studied reflectively one night for several minutes before opening them in turn in a little less than forty seconds. He planted a number of Danestar's observation devices in the vault, locked it up again and went away.

The devices, in their various ways, presently took note of the fact that Dr. Hishkan, following his third trip outside the Depot, came into the vault and remained occupied for over an hour with the specimen. His activities revealed that the thing was an artifact, that the thick shell of the apparent asteroid chunk could be opened in layers within which nestled a variety of instruments. Hishkan did something with the instruments which created a brief, but monstrous, blast of static in Danestar's listening recorders.

As the next supplies truck left the Depot, Danestar beamed a short-code message through the open

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barrier locks to their confederates outside, alerting them for possibly impending action and describing the object which would be smuggled out. Next day, she received an acknowledgment by the same route, including a summary of two recent news reports. The static blast she had described apparently had been picked up at the same instant by widely scattered instruments as much as a third of the way through the nearest Hub cluster. There was some speculation about its source, particularly—this was the subject of the earlier report—because a similar disturbance had been noted approximately three weeks before, showing the same mysteriously widespread pattern of simultaneous occurrence.

Wergard, meanwhile, had dug out and copied the Depot record of the item's history. It had been picked up in the fringes of the cosmic dust cloud of the Pit several years earlier by the only surviving ship of a three-vessel U-League expedition, brought back because it was emitting a very faint, irregular trickle of radiation, and stored in the Unclassified Specimens Depot pending further investigation. The possibility that the radiation might be coming from instruments had not occurred to anybody until Dr. Hishkan took a closer look at the asteroid from the Pit.

"Floating in space," Danestar said thoughtfully. "So it's a signaling device. An alien signaling device! Probably belonging to whatever's been knocking off Hub ships in the Pit."

"Apparently," Wergard said. He added, "Our business here, of course, is to nail Hishkan and stop the thieving. . . ."

"Of course," Danestar said. "But we can't take a chance on this thing getting lost. The Federation has to have it. It will tell them more about who built it, what they're like, than they've ever found out since they began to suspect there's something actively hostile in the Pit."

Wergard looked at her considerингly. Over two hundred ships, most of them Federation naval vessels, had disappeared during the past eighty years in attempts to explore the dense cosmic dust cloud near Mezmiali. Navigational conditions in the Pit were among the worst known. Its subspace was a seething turmoil of energies into which no ship could venture. Progress in normal space was a matter of creeping blindly through a murky medium stretching out for twelve light-years ahead where contact with other ships and with stations beyond the cloud was almost instantly lost. A number of expeditions had worked without mishap in the outer fringes of the Pit, but ships attempting penetration in depth simply did not return. A few fragmentary reports indicated the Pit concealed inimical in-

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telligent forces along with natural hazards.

Wergard said, "I remember now . . . you had a brother on one of the last Navy ships lost there, didn't you?"

"I did," Danestar said. "Eight years ago. I was wild about him—I thought I'd never get over it. The ship sent out a report that its personnel was being wiped out by what might be a radiation weapon That's the most definite word they've ever had about what happens there. And that's the last they heard of the ship."

"All right," Wergard said. "That makes it a personal matter. I understand that. And it makes sense to have the thing wind up in the hands of the military scientists. But I don't want to louse up our operation."

"It needn't be loused up," Danestar said. "You've got to get me into that vault, Wergard. Tonight, if possible. I'll need around two hours to study the thing."

"Two hours?" Wergard looked doubtful.

"Yes. I want a look at what it's using for power to cut through standard static shielding, not to mention the Depot's force barrier. And I probably should make duplos of at least part of the system."

"The section patrol goes past there every hour," Wergard said. "You'll be running a chance of getting caught."

"Well, you see to it that I don't."

Wergard grunted. "All right," he said. "Can do."

She spent her two hours in Dr. Hishkan's special vault that night, and told Wergard afterwards, "It's a temporal distorter, of course. A long-range communicator in the most simple form—downright primitive. At a guess, a route marker for ships. A signaling device . . . it picks up impulses, can respond with any one of fourteen signal patterns. Hishkan apparently tripped the lot of them in those blasts. I don't think he really knew what he was doing."

"That should be really big stuff commercially then," Wergard said.

"Decidedly! On the power side, it's eighty per cent more efficient than the best transmitters I've heard about. Nothing primitive there! Whoever got his hands on the thing should be able to give the Com Web system the first real competition it's had. . . ."

She added, "But this is the most interesting part. Wergard, that thing is *old!* It's an antique. At a guess, it hasn't been used or serviced within the past five centuries. Obviously, it's still operational—the central sections are so well shielded they haven't been affected much. Other parts have begun to fall apart or have vanished. That's a little bit sinister, wouldn't you say?"

Wergard looked startled. "Yes, I would. If they had stuff five hundred years ago better in some re-

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spects than the most sophisticated systems we have today . . ."

"In some rather important respects, too," Danestar said. "I didn't get any clues to it, but there's obviously a principle embodied designed to punch an impulse through all the disturbances of the Pit. If our ships had that. . . ."

"All right," Wergard said. "I see it. But let's set it up to play Dr. Hishkan into our hands besides. How about this: You put out a shortcode description at the first opportunity now of what you've found and what it seems to indicate. Tell the boys to get the information to Federation agents at once."

Danestar nodded. "Adding that we'll go ahead with our plans as they are, but they're to stand by outside to make sure the gadget doesn't get away if there's a slip-up?"

"That's about what I had in mind," Wergard said. "The Feds should co-operate—we're handing them the thing on a platter!"

He left, and Danestar settled down to prepare the message for transmission. It was fifteen minutes later, just before she'd finished with it, that Wergard's voice informed her over their private intercom that the entry lock in the energy barrier had been opened briefly to let in a space shuttle and closed again.

"I wouldn't bet," he said, "that this one's bringing in specimens or supplies. . . ." He paused, added suddenly, "Look out for yourself! There're boys with guns sneaking into this section from several sides. I'll have to move. Looks like the word's been given to pick us up!"

Danestar heard his instrument snap off. She swore softly, turned on a screen showing the area of the lock. The shuttle stood there, a sizable one. Men were coming out of it. It clearly hadn't been bringing in supplies or specimens.

Danestar stared at it, biting her lip. In another few hours, they would have been completely prepared for this! The air truck which brought supplies from the city every two days would have come and left during that time; and as the lock opened for it, her signal to set up the trap for the specimen smugglers would have been received by the Kyth Agency men waiting within observation range of the Depot. Thirty minutes later, any vehicle leaving the Depot without being given a simultaneous shortcode clearance by her would be promptly intercepted and searched.

But now, suddenly, they had a problem. Not only were the smugglers here, they had come prepared to take care of the two supposed technicians the U-League had planted in the Depot to spy on Dr. Hishkan. She and Corvin Wergard could make themselves very difficult to find; but, if they couldn't be located, the instrument from the

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Pit would be loaded on the shuttle and the thieves would be gone again with it, probably taking Dr. Hishkan and one or two of his principal U-League confederates along. Danestar's warning message would go out as they left, but that was cutting it much too fine! A space shuttle of that type was fast and maneuverable, and this one probably carried effective armament. There was a chance the Kyth operators outside would be able to capture it before it rejoined its mother ship and vanished from the Mezmiali System—but the chance was not at all a good one.

No, she decided, Dr. Hishkan's visitors had to be persuaded to stay around a while, or the entire operation would go down the drain. Switching on half a dozen other screens, she set recorders to cover them, went quickly about the room making various preparations to meet the emergency, came back to her worktable, completed the message to their confederates and fed it into a small shortcode transmitter. The transmitter vanished into a deep wall recess it shared with a few other essential devices. Danestar settled down to study the screens, in which various matters of interest could now be observed, while she waited with increasing impatience for Wergard to call in again.

More minutes passed before he did, and she'd started checking over areas in the Depot where he might have gone with the spy screen. Then his face suddenly appeared in the instrument.

"Clear of them now," he said. "They got rather close for a while. Nobody's tried to bother you yet?"

"No," Danestar said. "But our Depot manager and three boys from the shuttle came skulking along the hall a minute or two ago. They're waiting outside the door."

"Waiting for what?"

"For you to show up."

"They know you're in the room?" Wergard asked.

"Yes. One of them has a life detector."

"The group that's looking around for me has another of the gadgets," Wergard said. "That's why it took so long to shake them. I'm in a sneaksuit now. You intend to let them take you?"

"That's the indicated move," Danester said. "Everything's set up for it. Let me brief you. . . ."

The eight men who had come off the shuttle belonged to a smuggling ring which would act as middleman in the purchase of the signaling device from the Pit. They'd gone directly to Dr. Hishkan's office in the Depot's main building, and Danestar had a view of the office in one of her wall screens when they arrived. The specimen already had been brought out of the vault, and she'd been following their conversation about it.

Volcheme, the chief of the smugglers, and his assistant, Galester, who appeared to have had scientific

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training, showed the manner of crack professionals. They were efficient businessmen who operated outside the law as a calculated risk because it paid off. This made dealing with them a less uncertain matter than if they had been men of Dr. Hishkan's caliber—intelligent, amoral, but relatively inexperienced amateurs in crime. Amateurs with a big-money glint in their eyes and guns in their hands were unpredictable, took very careful handling. Volcheme and Galester, on the other hand, while not easy to bluff, could be counted on to think and act logically under pressure.

Danestar was planning to put on considerable pressure.

"They aren't sure about us," she said. "Hishkan thinks we're U-League spies but that we haven't found out anything. Volcheme wants to be certain. That's why he sent in word to have us picked up before he got here. Hishkan is nervous about getting involved in outright murder but will go along with it."

Wergard nodded. "He hasn't much choice at this stage. Well, play it straight then—or nearly straight. I'll listen but won't show unless there's a reason. While I'm at large, you have life insurance. I suppose you're quizproofed. . . ."

"Right." Danestar checked her watch. "Doped to the eyebrows. I took it twenty minutes ago, so the stuff should be in full effect now. I'll make the contact at once."

Wergard's face vanished from the spy screen. Danestar turned the sound volume on the wall screen showing the group in Dr. Hishkan's office back up. Two sets of recorders were taking down what went on in there and already had stored away enough evidence to convict Dr. Hishkan on a number of counts. One of the sets was a decoy; it was concealed in the wall, cleverly enough but not so cleverly that the smugglers wouldn't find it when they searched the room. The duplicate set was extremely well concealed. Danestar had made similar arrangements concerning the handful of other instruments she couldn't allow them to discover. When they took stock of the vast array of miniature espionage devices they'd dig up here, it should seem inconceivable to them that anything else might still be hidden.

She sent a final glance around the room. Everything was as ready as she could make it. She licked her lips lightly, twisted a tiny knob on her control belt, shifted her fingers a quarter-inch, turned down a switch. Her eyes went back to the view in Dr. Hishkan's office.

Dr. Hishkan, Volcheme and Galester were alone in it at the moment. Three of Volcheme's men waited with Tornull, the Depot manager, in the hall outside of Danestar's room; the remaining three had been sent to join the search for Wergard. The craggy lump of the asteroid which wasn't

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an asteroid stood in one corner. Several of its sections had been opened, and Galester was making a careful examination of a number of instruments he'd removed from them.

Dr. Hishkan, showing signs of nervousness, evidently had protested that this was an unnecessary delay because Galester was now saying to Volcheme, "Perhaps he doesn't understand that when our clients pay for this specimen, they're buying the exclusive privilege of studying it and making use of what they learn."

"Naturally, I understand that!" Dr. Hishkan snapped.

"Then," Galester went on, "I think we should have an explanation for the fact that copies have been made of several of these subassemblies."

"Copies?" Dr. Hishkan's eyes went wide with amazed suspicion. "Ridiculous! I—"

"You're certain?" Volcheme interrupted.

"Absolutely," Galester told him. "There's measurable duplo radiation coming from four of the devices I've checked so far. There's no point in denying that, doctor. We simply want to know why you made the duplicates and what you've done with them."

"Excuse me!" Danestar said crisply as Dr. Hishkan began to splutter an indignant denial. "I can explain the matter. The duplos are here."

In the office, a brief silence followed her announcement. Eyes switched right and left, then, as if obeying a common impulse, swung suddenly around to the wall screen in which Danestar's image had appeared.

Dr. Hishkan gasped, "Why . . . why that's—"

"Miss Gems, the communications technician, no doubt," Volcheme said dryly.

"Of course, it is," Danestar said. "Volcheme, I've listened to this discussion. You put yourself in a jam by coming here. But, under the circumstances, we can make a deal."

The smuggler studied her. He was a lean, blond man, no longer young, with a hard, wise face. He smiled briefly, said, "A deal I'll like?"

"If you like an out. That's what you're being offered."

Dr. Hishkan's eyes had swiveled with growing incredulity between the screen and Volcheme's face. He said angrily, "What nonsense is this? Have her picked up and brought here at once! We must find out what—"

"I suggest," Volcheme interrupted gently, "you let me handle the matter. Miss Gems, I assume your primary purpose here is to obtain evidence against Dr. Hishkan?"

"Yes," said Danestar.

"You and your associate—Mr. Wergard—are U-League detectives?"

She shook her head.

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"No such luck, Volcheme! We're private agency, full-privilege, Federation charter."

"I suspected it." Volcheme's lips pulled back from his teeth in a grimace of hostility. "You show the attributes of the breed! Do I know the agency?"

"Kyth Interstellar."

He was silent a moment, said, "I see. . . . Is Mr. Wergard available for negotiations?"

"No. You'll talk to me."

"That will be satisfactory. You realize, of course, that I don't propose to buy your deal blind. . . ."

"You aren't expected to," Danestar said.

"Then let's get the preliminaries out of the way." The smuggler's face was bleak and watchful. "I have men guarding your room. Unlock the door for them."

"Of course." Danestar turned towards the door's lock control in the wall on her left. Volcheme pulled a speaker from his pocket.

They understood each other perfectly. One of the last things a man of Volcheme's sort cared to do was get a major private detective agency on his neck. It was a mistake, frequently a fatal one. As a matter of principle and good business, the agencies didn't get off again.

But, if he saw a chance to go free with the loot, leaving no witnesses to point a finger at him, he'd take it. Danestar would remain personally safe so long as Volcheme's men didn't catch up with Wergard. After that, she'd be safe only if she kept the smuggler convinced he was in a trap from which there was no escape. Within a few hours he would, in fact, be in such a trap, but he wasn't in it at present. Her arrangements were designed to keep him from discovering that.

The door clicked open and four men came quickly and cautiously into the room. Three of them were smugglers; the fourth was Tornull, the U-League Depot manager. The one who'd entered first stayed at the door, pointing a gun at Danestar. Volcheme's other two men separated, moved towards her watchfully from right and left. They were competent professionals who had just heard that Danestar was also one. The gun aimed at her from the door wasn't there for display.

"As a start, Decrain," Volcheme's voice said from the screen, "have Miss Gems give you the control belt she's wearing."

Danestar unsnapped the belt, making no unnecessary motions, and handed it over to the big man named Decrain. They were pulling her teeth, or thought they were, which was sensible from their point of view and made no immediate difference from hers; the belt could be of no use at present. Decrain drew out a chair, told her to sit down and keep her hands in sight. She complied, and the man with the gun came up and stood eight feet to her left. Decrain and his com-

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panion began a quick, expert search of her living quarters with detectors. Tornull, Dr. Hishkan's accomplice in amateur crime, watched them, now and then giving Danestar and her guard a puzzled stare which indicated the girl didn't look very dangerous to him and that he couldn't understand why they were taking such elaborate precautions with her.

Within six minutes, Decrain discovered as much as Danestar had wanted them to find of her equipment and records. Whenever the detector beams approached the rest of it, other beams had reached out gently and blended with them until they'd slid without a quiver over the shielded areas. The collection of gadgetry Decrain laid out on Danestar's worktable was impressive and exotic enough to still suspicions, as she had expected. When he announced yet another discovery, Galester observed thoughtfully from the screen, "That's a dangerously powerful anti-interrogation drug you use, Miss Gems!"

"It is," Danestar acknowledged. "But it's dependable. I'm conditioned to it."

"How much have you taken?"

"My limit. A ten-hour dose . . . sixty-five units."

She was telling the truth—her developed ability to absorb massive dosages of quizproof without permanent ill effects had pulled her out of more than one difficult situation. But a third of the amount she'd mentioned was considered potentially lethal. Decrain studied her doubtfully a moment as if pondering the degree of her humanity. Decrain appeared to be a stolid type, but the uncovering of successive batteries of spidery instruments, unlike anything he had encountered in his professional career, had caused him mental discomfort; and when he brought Danestar's set of gimmicked wigs—to which the green one she'd been wearing was now added—out of a shrinkcase and watched them unfold on the table, he'd seemed shaken.

"You'll be brought over here now, Miss Gems," Volcheme said, his face sour. "We want a relaxed atmosphere for our discussion, so Decrain will have to search you thoroughly first. As far as possible, he'll be a gentleman about it, of course."

"I'm sure he will be," Danestar said agreeably. "Because if he isn't, his hide becomes part of our deal."

The muscles along Decrain's jaw tightened for an instant, but he continued packaging the sections of Danestar's instruments Galester wanted to examine without comment. Tornull began to laugh, caught sight of the big man's expression and checked himself abruptly, looking startled.

The semimaterial composite body of the goyal flowed below the solid surface of the world of Mez-

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miali towards the Unclassified Specimens Depot, swerving from its course occasionally to avoid the confusing turbulences of radiation about the larger cities. Its myriad units hummed with co-ordinating communal impulses of direction and purpose.

Before this, in all its thousand years of existence, the goyal had known only the planets of the Pit, murkily lit by stars which swam like a glowing fog in the dusk. Once those worlds had supported the civilization of an inventive race which called itself the Builders. The Builders developed spaceships capable of sliding unharmed through the cosmic dust at a speed above that of light, and a location system to guide them infallibly through the formless gloom where ordinary communication methods were useless. Eventually, they reached the edges of the Pit—and shrank back. They had assumed the dust cloud stretched on to the end of the universe, were appalled when they realized it was limited and seemed suspended in some awesome, gleaming, impossibly *open* void.

To venture into that terrible alien emptiness themselves was unthinkable. But the urge to explore it by other means grew strong. The means they presently selected was a lowly form of energy life, at home both in the space and on the planets of the Pit. The ingenuity of the Builders produced in it the impulse to combine with its kind into increasingly large, more coherent and more purposeful groups; and the final result of their manipulations was the goyal, a superbeing which thought and acted as an individual, while its essential structure was still that of a gigantic swarm of the minor, uncomplicated prototypes of energy life with which the Builders had begun. The goyal was intended to be their galactic explorer, an intelligent, superbly adaptable servant, capable of existing and sustaining itself as readily in space as on the worlds it encountered.

In its way, the goyal was an ultimate achievement of the Builders' skills. But it was to become also the monument to an irredeemable act of stupidity. They had endowed it with great and varied powers and with keen, specialized intelligence, but not with gratitude. When it discovered it was stronger than its creators and swifter than their ships, it turned on the Builders and made war on them, exterminating them on planet after planet until, within a century, it had become sole master of the Pit.

For a long time, it remained unchallenged there. It shifted about the great dust cloud at will, guided by the Builders' locator system, feeding on the life of the dim worlds. During that period, it had no concept of intelligence other than its own and that of the Builders. Then a signal which had not come into use since the last of the Builders vanished alerted the locator system.

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A ship again had appeared within its range. . . .

The goyal flashed through the cloud on the locator impulses like a great spider darting along the strands of its web. At the point of disturbance, it found an alien ship groping slowly and blindly through the gloom. Without hesitation, it flowed aboard and swept through the ship, destroying all life inside.

It had been given an understanding of instruments, and it studied the ship in detail, then studied the dead beings. They were not Builders though they showed some resemblance to them. Their ship was not designed to respond to the locator system; it had come probing into the Pit from the surrounding void.

Other ships presently followed it, singly and in groups. They came cautiously, scanning the smothering haze for peril, minds and instruments alert behind a variety of protective devices which seemed adequate until the moment the goyal struck. The enveloping protective screens simply were too light to hamper it seriously; and once it was through the screens, the alien crew was at its mercy. But the persistence these beings showed in intruding on its domain was disturbing to it. It let some of them live for a time on the ships it captured, while it watched and studied them, manipulated them, experimented with them. Gradually, it formed a picture of an enemy race in the void which must be destroyed, as it had destroyed the Builders, if its supremacy was to be maintained.

It did not intend to venture into the void alone. It had planted sections of its body on a number of the worlds of the Pit. The sections were as yet immature. They could not move about in space as the parent body did, possessed barely enough communal mind to know how to nourish themselves from the planetary life around them. But they were growing and developing. In time, the goyal would have others of its kind to support it. Until then, it planned to hold the Pit against the blind intruders from the void without letting the enemy race become aware of its existence.

Then the unforeseeable happened. An entire section of the locator system suddenly went dead, leaving the remainder functioning erratically. For the first time in its long existence, the goyal was made aware of the extent of its dependence on the work of the Builders. After a long, difficult search, it discovered the source of the trouble. A key locator near the edge of the dust cloud had disappeared. Its loss threatened to make the entire system unusable.

There was no way of replacing it. The goyal's mind was not that of a Builder. It had learned readily to use instruments, but it could not construct them. Now it realized its mistake in exterminating the only

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civilized race in the Pit. It should have kept the Builders in subservience to itself so that their skills would always be at its disposal. It could no longer be certain even of detecting the intruding aliens when they came again and preventing them from discovering the secrets of the cloud. Suddenly, the end of its reign seemed near.

Unable to develop a solution to the problem, the goyal settled into a kind of apathy, drifted with dimming energies aimlessly about the Pit—until, unmistakably, the lost locator called it! Alert at once, the goyal sped to other units of the system, found they had recorded and pinpointed the distant blast. It had come from beyond the cloud, out of the void! Raging, the goyal set off in the indicated direction. It had no doubt of what had happened—one of the alien ships had discovered the locator and carried it away. But now it could be and would be recovered.

Extended into a needle of attenuated energy over a million miles in length, the goyal flashed out into the starlit void, its sensor units straining. There was a sun dead ahead; the stolen instrument must be within that system. The goyal discovered a spaceship of the aliens moving in the same direction, closed with it and drew itself on board. For a time, its presence unsuspected, it remained there, forming its plans. It could use the ship's energies to build up its reserves, but while the ship continued towards Mezmiali, it made no move.

Presently, it noted a course shift which would take the ship past the Mezmiali system but close enough to it to make the transfer to any of the sun's four planets an almost effortless step. The goyal remained quiet. Not long afterwards, its sensors recorded a second blast from the lost locator. Now it knew not only to which planet it should go but, within a few hundred miles, at what point of that planet the instrument was to be found.

Purple fire lashed out from the ship's bulkheads to engulf every human being on board simultaneously. Within moments, the crew was absorbed. The goyal drank energy from the drive generators to the point of surfeit, left the ship and vanished in the direction of Mezmiali. Within the system, it again closed in on a ship and rode down with it to the planet.

It had reached its destination undetected and at the peak of power, its reserves intact; but this was unknown enemy territory, and it remained cautious. For hours, its sensors had known precisely where the locator was. The goyal waited until the humans had disembarked from the ship, until the engines were quiet and it could detect no significant activity in the area immediately about it. Then it flowed out of the ship and into the ground. The two humans who saw it were absorbed before they could make a report.

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There was no reason to hesitate longer. Moving through the dense solid matter of the planet was a tedious process by the goyal's standdards; but, in fact, only a short time passed before it reached the University League's isolated Depot.

There it was brought to a very abrupt stop.

It had flowed up to the energy barrier surrounding the old fortress site and partly into it. Hostile forces crashed through it instantly with hideous, destructive power. A quarter of its units died in that moment. The remaining units whipped back out of the boiling fury of the field, reassembled painfully underground near the Depot. The body was reduced and its energy depleted, but it had suffered no lasting damage.

The communal mind remained badly shocked for minutes; then it, too, began to function again. There was not the slightest possibility of breaking through that terrible barrier! In all its experience, the goyal had never encountered anything similar to it. The defensive ship screens it had driven through in its secretive murders in the Pit had been fragile webs by comparison, and the Builders' stoutest planetary energy shields had been hardly more effective. It began searching cautiously along the perimeter of the barrier. Presently, it discovered the entrance lock.

It was closed, but the goyal knew about locks and their use. The missing locator was so close that the sensors' reports on it were blurred, but it was somewhere within this monstrously guarded structure. The goyal decided it needed only to wait. In time, the lock would open and it would enter through it. It would reduce some of the human beings inside to a state of obedient semilife in which they could handle unfamiliar mechanisms for it, destroy the others immediately, find the locator and be on its way back to the Pit before the alien world realized that anything was amiss here. . . .

Approximately an hour later, a slow, bulky vehicle came gliding down from the sky towards the Depot. Messages were exchanged between it and a small building on the outside of the barrier in the language employed on the ships which had come into the Pit. A section of the communal mind interpreted the exchange without difficulty, reported:

The vehicle was bringing supplies, was expected, and would be passed through the barrier lock.

At the lock, just below the surface of the ground, the goyal waited, its form compressed to near-solidity, to accompany the vehicle inside.

In Dr. Hishkan's office in the central building of the Depot, the arrival of the supplies truck was being awaited with a similar degree of interest by the group assembled there. Their feelings about it va-

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ried. Danestar's feeling—in part—was vast relief. Volcheme was a very tough character, and there was a streak of gambler's recklessness in him which might have ruined her plan.

"Any time anything big enough to have that apparatus on board leaves the Depot now, we clear it by shortcode before the lock closes," she'd said. "You don't know what message to send! You can't get it from me, and you can't get it from Wergard. The next truck or shuttle that leaves won't get cleared. And it will get stopped almost as soon as it's outside."

That was it—the basic lie! If they'd been willing to take the chance, they could have established in five minutes that it was a lie.

"You're bluffing," Volcheme had said, icily hating her. "The bluff won't stop us from leaving when we're ready to go. We won't have to run any risks. We'll simply go out with the shuttle to check your story before we load the thing on."

"Then why don't you do it? Why wait?" She'd laughed, a little high, a little feverish, with the drugs cooking in her—her own and the stuff Galester had given her in an attempt to counteract the quizproof effect. She'd told them it wasn't going to work; and now, almost two hours later, they knew it wasn't going to work.

They couldn't make her feel physical pain, they couldn't intimidate her, they couldn't touch her mind. They'd tried all that in the first fifteen minutes when she came into the office, escorted by Decrain and Tornull, and told Volcheme bluntly what the situation was, what he had to do. They could, of course, as they suggested, kill her, maim her, disfigure her. Danestar shrugged it off. They could, but she didn't have to mention the price tag it would saddle them with. Volcheme was aware of it.

The threats soon stopped. Volcheme either was in a trap, or he wasn't. If the Kyth Agency had him boxed in here, he would have to accept Danestar's offer, leave with his group and without the specimen. He could see her point—they had an airtight case against Dr. Hishkan and his accomplices now. The specimen, whatever its nature, was a very valuable one; if it had to be recaptured in a running fight with the shuttle, it might be damaged or destroyed. That was the extent of the agency's responsibility to the U-League. They had no interest in Volcheme.

The smuggler was being given an out, as Danestar had indicated. But he'd had the biggest, most profitable transaction of his career set up, and he was being told he couldn't go through with it. He didn't know whether Danestar was lying or not, and he was savage with indecision. If the Depot was being watched—Volcheme didn't much doubt that part of the story—sending the shuttle out to check

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around and come back could arouse the suspicions of the observers enough to make them halt it when it emerged the second time. That, in fact, might be precisely what Danestar wanted him to do.

He was forced to conclude he couldn't take the chance. To wait for the scheduled arrival of the supplies truck was the smaller risk. Volcheme didn't like waiting either . . . Wergard hadn't been found; and he didn't know what other tricks the Kyth agents could have prepared. But, at any rate, the truck was the answer to part of his problem. It would be let in, unloaded routinely, allowed to depart, its men unaware that anything out of the ordinary was going on in the Depot. They would watch then to see if the truck was stopped outside and searched. If that happened, Volcheme would be obliged to agree to Danestar's proposal.

If it didn't happen, he would know she'd been lying on one point; but that would not be the end of his difficulties. Until Wergard was captured or killed, he still couldn't leave with the specimen. The Kyth agents knew enough about him to make the success of the enterprise depend on whether he could silence both of them permanently. If it was possible, he would do it. With stakes as high as they were here, Volcheme was not inclined to be squeamish. But that would put an interstellar organization of experienced man-hunters on an unrelenting search for the murderers of two of its members.

Whatever the outcome, Volcheme wasn't going to be happy. What had looked like the haul of a lifetime, sweetly clean and simple, would wind up either in failure or as a dangerously messy partial success. Galester and Decrain, seeing the same prospects, shared their chief's feelings. And while nobody mentioned that the situation looked even less promising for Dr. Hishkan and Tornull, those two had at least begun to suspect that if the smugglers succeeded in escaping with the specimen, they would not want to leave informed witnesses behind.

When the voice of an attendant in the control building near the lock entry finally announced from the wall screen communicator that the supplies truck had arrived and was about to be let into the Depot, Danestar therefore was the most composed of the group. Even Decrain, who had been detailed to keep his attention on her at all times, stood staring with the others at the screen where Dr. Hishkan was switching on a view of the interior lock area.

Danestar made a mental note of Decrain's momentary lapse in alertness, though it could make no difference to her at present. The only thing she needed to do, or could do, now was wait. Her gaze shifted to the table where assorted instruments Galester had taken out of the alien signaling device still stood. At

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the other side of the table was the gadgetry Decrain had brought here from her room, a toy-sized short-code transmitter among it. Volcheme had wanted to be sure nobody would send out messages while the lock was open.

And neither she nor Wergard would be sending any messages. But automatically, as the lock switches were thrown, the duplicate transmitter concealed in the wall of her room would start flicking its coded alert out of the Depot, repeating it over and over until the lock closed.

And twenty or thirty minutes later, when the supplies truck slid back out through the lock and lifted into the air, it would be challenged and stopped.

Then Volcheme would give up, buy his pass to liberty on her terms. There was nothing else he could do.

It wasn't the kind of stunt she'd care to repeat too often—her nerves were still quivering with unresolved tensions. But she'd carried it off without letting matters get to a point where Wergard might have had to help her out with some of his fast-action gunplay. Danestar told herself to relax, that nothing at all was likely to go wrong now.

Her glance slipped over to Volcheme and the others, silently watching the wall screen, which was filled with the dead, light-drinking black of the energy barrier, except at the far left where the edge of the control building blocked the barrier from view. A great glowing circle, marking the opened lock in the barrier, was centered on the screen. As Danestar looked at it, it was turning a brilliant white.

Some seconds passed. Then a big air truck glided out of the whiteness and settled to the ground. The lock faded behind it, became reabsorbed by the dull black of the barrier. Several men climbed unhurriedly out of the truck, began walking over to the control building.

Danestar started upright in her chair, went rigid.

A wave of ghostly purple fire had lifted suddenly out of the ground about the truck, about the walking men, enclosing them.

There was a general gasp from the watching group in Hishkan's office. Then, before anyone spoke or moved, a voice roared from the communicator:

"Control office, attention! Radiation attack! Close internal barrier fields at once! *Close all internal Depot barrier fields at once!*"

Volcheme, whatever else might be said of him, was a man of action. Perhaps, after two hours of growing frustration, he was ready to welcome action. Apparently, a radiation weapon of unidentified type had been used inside the Depot. Why it had been turned on the men who had got off the supplies truck was unexplained. But it had consumed them completely in an instant, though the truck itself appeared undamaged.

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Coming on top of the tensions already seething in the office, the shock of such an attack might have brought on complete confusion. But Volcheme immediately was snapping out very practical orders. The three smugglers detailed to help find Corvin Wergard were working through the Depot's underground passage system within a hundred yards of the main building. They joined the group in the office minutes later. The last of Volcheme's men was in the control section. He confirmed that the defensive force fields enclosing the individual sections of the Depot inside the main barrier had been activated. Something occurred to Volcheme then. "Who gave that order?"

"Wergard did," said Danestar.

They stared at her. "That *was* Wergard," Tornull agreed. "I didn't realize it, but that was his voice!"

Volcheme asked Danestar, "Do you know where he is?"

She shook her head. She didn't know, as a matter of fact. Wergard might have been watching the lock from any one of half a hundred screens in the Depot. He could have been in one of the structures adjacent to the control building—too close to that weird, fiery phenomenon for comfort. Radiation attack? What had he really made of it? Probably, Danestar thought, the same fantastic thing she'd made of it. His reaction, the general warning shouted in the communications system, implied that and very likely had been intended to imply it to her. She was badly frightened, very much aware of it, trying to decide how to handle the incredibly bad turn the situation might have taken.

Volcheme, having hurried Tornull off to make sure the space shuttle, which had been left beside the building's landing dock was within the section's barrier field, was asking Galester and Dr. Hishkan, "Have you decided what happened out there?"

Galester shrugged. "It's a selective antipersonnel weapon, obviously! The truck was enclosed by the charge, presumably because there was somebody on it. The truck shows no signs of damage while the clothing the men outside it were wearing disappeared with them. The weapon may have been smuggled into the Depot on the truck, discharged prematurely and perhaps destroyed by its own charge. Or it may be stationed outside the Depot and fired through the open lock."

Volcheme looked at Hishkan. "Could it have been something that was among your specimens here? Something Miss Gems and Wergard discovered and Wergard put to use just now?"

The scientist gave Danestar a startled glance.

Danestar said evenly, "Forget that notion, Volcheme. It doesn't make sense."

"Doesn't it? What else makes

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sense?" the smuggler demanded. "You've been here two weeks. You're clever people, as you've demonstrated. Clever enough to recognize a really big deal when Hishkan shoved it under your noses. Clever enough to try to frighten competitors away from it. You know what I think, Miss Gems? I think that when I showed up here today, it loused up some private plans you and Wergard had for Hishkan's specimen—"

"We do have plans for it," said Danestar. "It goes to the Federation. And now you'd better help us see it gets there."

Volcheme almost laughed. "I should?"

Danestar said, "You asked what else made sense. There's one thing that does. You might have thought of it. That U-League specimen didn't just happen to be drifting around in the Pit where it was found. Somebody made it and put it there!"

She'd caught the attention of everyone in the office, went on quickly. It was a space-signaling device, picked up by accident, brought to the Depot unrecognized, which could tell human scientists a nearly complete story of how its unknown designers were able to move about freely in the dust cloud and how they communicated within it. And recently Dr. Hishkan had twice broadcast the information that human beings had the space instrument. The static bursts he'd produced had been recorded in the Hub a great deal farther away from Mezmiali than the Pit—

Volcheme interrupted with angry incredulity. "So you're suggesting aliens from the Pit have come here for it!"

Danestar said, "Dr. Hishkan, at least, must be aware that a fragmentary report was received from one of the ships which vanished in the Pit to the effect that it was under attack by what appeared to be a radiation weapon."

"That's true! That's true!" Dr. Hishkan's face was white.

"I think," Danestar told them, "that when that air truck came into the Depot, something came in with it the truckers didn't know was there. Something that had a radiation weapon of a kind we don't know about. Volcheme, if you people have a single functioning brain cell left between you, you'll tell the control building right now to put out a call for help! We're going to need it. We want the heaviest Navy ships near Mezmiali to get down here to handle this, and . . ."

"Volcheme!" a voice said urgently from the screen communicator.

The smuggler's head turned. "Go ahead, Morg!" His voice was harsh with impatience.

"The U-League group that's been hunting for this Wergard fellow doesn't answer!" Morg announced. He was the man Volcheme had stationed in the control building. "Six men—two of 'em

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wearing communicators. We've been calling 'em for eight minutes. Looks like they might have got wiped out somewhere in the Depot the same way as the truck crew—"

There was an uncomfortable stir among the men in the office. Volcheme said sharply, "Have the operators keep calling them! They may have some reason for staying quiet at the moment. Everyone else has checked in?"

"Yes," Morg said. "There were eight more outside the control building. They're all sitting behind some defense screen or other now."

"They've been told to report anything they observe?"

"Yes . . . But nobody," Morg added, "has reported anything yet."

"Let me know when they do. And, Morg, make very sure that everyone in the control building is aware that until this matter is settled, the control building will take orders only from me!"

"They're *real* aware of that, Volcheme," Morg said.

The smuggler turned back to the group in the office. "Of course, we're not going to be stupid enough to take Miss Gems' advice!" he said. If he felt any uncertainty, it didn't show in his voice or face. Somebody has pulled a surprise trick with some kind of radiation device here and killed a number of people. But we're on guard now, and we're very far from helpless! Decrain will stay here to make sure Miss Gems does not attempt to interfere in any way. The rest of us will act as a group."

He selected four smugglers. "There are four high-power energy rifles on the shuttle. You four will handle those. Galester, Dr. Hishkan, Tornull and I will have handguns. Dr. Hishkan tells me that the radiation suits used for dangerous inspection work in the Depot are stored on the ground level of this building.

"Remember, this device is an antipersonnel weapon. We'll be in the suits, which will block its effect on us at least temporarily; we'll be armed, and we'll be in the shuttle. There's a barrier exit at the building loading dock through which we can get the shuttle out into the Depot. Scanscreens are being used in the control building to locate the device or its operator. When they're found—"

The communicator clicked. Wergard's voice said, "Volcheme, this is Wergard. Better listen!"

Volcheme's head swung around. "What do you want?" It was almost a snarl.

"If you'd like a look at that antipersonnel weapon," Wergard's voice told him dryly, "switch your screen to Section Thirty-six. You may change your mind about chasing it around in the shuttle."

A few seconds later, the wall screen flickered and cleared. For an instant, they all stared in silence.

Like a sheet of living purple fire,

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the thing flowed with eerie swiftness along the surface of one of the Depot's side streets towards a looming warehouse. Its size, Danestar thought, was the immediately startling factor—it spread across the full width of the street and was a hundred and fifty, perhaps two hundred, yards long. As it reached the storehouse, the big building's defense field flared into activity. Instantly, the fiery apparition veered sideways, whipped around the corner of the street and was gone from sight.

Shifting views of the Depot flicked through the screen as Dr. Hishkan hurriedly manipulated the controls. He glanced around, eyes wide and excited. "I've lost it! It appears to be nowhere in the area."

"I wouldn't worry," Volcheme said grimly. "It will show up again." He asked Galester, "What did you make of it? What *is* it?"

Galester said, "It's identical, of course, with what we saw engulfing the truck and the men at the lock. We saw only one section of it there. It emerged partly above the surface of the Depot and withdrew into it again. As to what it is—" He shrugged. "I know of nothing to compare it to precisely!" He hesitated again, went on. "My impression here was that it was moving purposefully . . . directing itself! Conceivably an energy weapon could control a mobile charge in such a manner that it would present that appearance."

Dr. Hishkan added, "Whatever this is, Volcheme, I believe it would be very unwise to attempt to oppose it with standard weapons!"

The smuggler gave him a tight grin, said, "Since there's no immediate need to make the attempt, we'll postpone it, at any rate, doctor! To me, the significant part of what we just saw was that the thing avoided contact with the defense field of that building—or was turned away from it, if it's the mobile guided charge Galester was talking about. In either case, our enemy can't reach us until we decide what we're dealing with and how we should deal with it."

Danestar said sharply, "Volcheme, don't be a fool—don't count on that! The ships that disappeared in the Pit carried defense fields, too."

Volcheme gave her a venomous glance but didn't answer. Dr. Hishkan said thoughtfully, "What Miss Gems says is technically true. But even if we are being subjected to a similar attack, this is a very different situation! This complex was once a fort designed to defend a quarter of the continent against the heaviest of space-borne weapons. And while the interior fields do not compare with the external barrier in strength, they are still far denser than anything that would or could be carried by the largest exploration ships. I believe we can depend on the field about this building to protect us while we consider means to extri-

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cate ourselves from the situation!" He added, "I feel far more optimistic now! When we have determined the nature of the attacking entity, we should find a method of combating it available to us in the Depot. There is no need to appeal to the authorities for help, as Miss Gems suggested, and thereby have our personal plans exposed to them—which was, of course, what she intended!"

Wergard's voice said from the communicator, "If you want to continue your studies, Dr. Hishkan, you'll get the chance immediately! The thing is now approaching the main building from the north, and it's coming fast."

Dr. Hishkan turned quickly back to the screen controls.

There was a wide square enclosed by large buildings directly north of the main one. The current of fire was half across the square as it came to view on the screen. As Wergard had said, it was approaching very swiftly and there was a suggestion of deliberate, malevolent purpose in that rushing motion which sent a chill down Danestar's spine. In an instant, it seemed, it reached the main building and the energy field shielding it; and now, instead of veering off to the side as it had done before, the tip of the fiery body curved upwards. It flowed vertically up along the wall of the building, inches away from the flickering defense field. For seconds, the wall screen showed nothing but pale, purple flame streaming across it. Then the flame was gone; and the empty square again filled the screen.

From the communicator, Wergard's voice said quickly, "It crossed the top of the building, went down the other side and disappeared below the ground level surface . . ."

The voice broke off. Almost immediately, it resumed. "I've had more luck keeping it in view than you. It's been half around the Depot by now, and my impression is it's been looking things over before it makes its next move—whatever that's going to be.

"But one thing I've noticed makes me feel much less secure behind a section energy field than some of you people think you are. The thing has kept carefully away from the outer Depot barrier—a hundred yards or so at all times—and it cuts its speed down sharply when it gets anywhere near that limit. On the other hand, as you saw just now, it shows very little respect for the sectional building fields. I haven't seen it attempt to penetrate one of them, but it's actually contacted them a number of times without apparent harm to itself, as it did again in passing over the main building a moment ago."

Volcheme snapped, "What's that supposed to tell us?"

"I think," Wergard said, "that, among other things, our visitor has been testing the strength of those

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barriers. I wouldn't care to bet my life on what it's concluded, as you seem willing to do! Another point—it may be developing a particular interest in the building you're in! I suggest you take a close look at the square on the north again."

At first glance, the square still seemed empty. Then one noticed that its flat surface was alive with tiny sparks, with flickers and ripplings of pale light. The thing was there, almost completely submerged beneath the Depot's ground level, apparently unmoving.

Tornull said, staring fascinatedly, "Perhaps it knows we have that specimen in here!"

Nobody answered. But in the square, as if aware its presence had been discovered, the fire shape rose slowly to the surface of the ground until it lay in full view, flat and monstrous, sideways to the main building. The silence in the office was broken suddenly by a brief, rattling, chattering sound. It had not been a loud noise, but everyone started nervously, looked over at the table where the pile of instruments had been assembled.

"What was that?" Volcheme demanded.

"My shortcode transmitter," Danestar told him.

"It's recorded a message?"

"Obviously."

"From whom?"

"I'm not sure," said Danestar evenly. "But let's guess. It's not from outside the Depot because shortcode won't go through the barrier. It's not from Wergard, and it's not from one of your people. What's left?"

The smuggler stared at her. "That's an insane suggestion!"

"Perhaps," Danestar said. "Why don't we listen to the translation?"

"We will!" Volcheme jerked his head at Decrain. "Go over to the table with her! She isn't to touch anything but the transmitter!"

He watched, mouth twisted unpleasantly, as Decrain followed Danestar to the table. She picked up the miniature transmitter, slid a fingernail quickly along a groove to the phonetic translator switch. As she set the instrument back on the table, the words began.

"Who ... has ... it ... where ... is... it ... I ... want ... it ... who ... has ... it ... where ..."

It went on for perhaps a minute and a half, three sentences repeated monotonously over and over, then stopped with a click. Danestar wasn't immediately aware of the effect on the others. She'd listened in a mixture of fear, old grief, hate, and sickened revulsion. Shortcode was speech, transmitted in an economical flash, restored to phonetic speech in the translator at the reception point. Each of the words which made up the three sentences had been pronounced at one time by a human being, were so faithfully reproduced one could tell the

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sentences had, in fact, been patched together with words taken individually from the speech of three or four different human beings. Human beings captured by the enemy in the Pit, Danestar thought, long dead now, but allowed to live while the enemy learned human speech from them, recorded their voices for future use—

She looked around. The others seemed as shaken as she was. Volcheme's face showed he no longer doubted that the owner of the alien instrument had come to claim it.

Dr. Hishkan remarked carefully, "If it should turn out that we are unable to destroy or control this creature, it is possible we can get rid of it simply by reassembling the device it's looking for and placing it outside the defense screen. If it picks it up, we can open the barrier lock as an indication of our willingness to let it depart in peace with its property."

Volcheme looked at him. "Doctor," he said, "don't panic just because you've heard the thing talk to you! What this does seem to prove is that the specimen you're selling through us is at least as valuable as it appeared to be . . . and I for one don't intend to be cheated out of my profit!"

"Nor I," Dr. Hishkan said hastily. "But the creature's ablity to utilize shortcode to address us indicates a dangerous level of intelligence. Do you have any thoughts on how it might be handled now?"

Galester interrupted, indicating the screen. "I believe it's beginning to move . . ."

There was silence again as they watched the fire body in the square. Its purple luminescence deepened and paled in slowly pulsing waves; then the tip swung about, swift as a flicking tongue, first towards the building, then away from it; and the thing flowed in a darting curve off across the square and into a side street.

"Going to nose around for its treasure somewhere else!" Volcheme said after it had vanished. "So while it may suspect it's here, it isn't sure. I'm less impressed by its apparent intelligence than you are, doctor! A stupid man can learn to use a complicated instrument, if somebody shows him how to do it. This may be a stupid alien . . . a soldier type sent from the Pit to carry out a specific mission."

"Possibly a robot," Galester said.

"Possibly a robot," Volcheme agreed. "And, to answer your question of a moment ago, doctor—yes, I have thought of a way to get it off our necks."

"What's that?" Dr. Hishkan inquired eagerly.

"No need to discuss it here!" Volcheme gave Danestar a glance of mingled malevolence and triumph. She understood its meaning well enough. If Wergard could be located, Volcheme could rid himself of the Kyth operators with impunity now. There were plenty of wit-

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nesses to testify that the monstrous creature which had invaded the Depot had destroyed over a dozen men. She and Wergard would be put down as two more of its victims.

"We won't use the shuttle at present," Volcheme went on. "But we want the portable guns, and we'll get ourselves into antiradiation suits immediately. Decrain, watch the lady until we get back—use any methods necessary to make sure she stays where she is and behaves herself! We'll bring a suit back up for you. The rest of you come along. Hurry!"

Decrain started to say something, stood scowling as the others filed quickly out of the office and started down the hall to the right. The big man looked uneasy. With a gigantic fiery alien around, he might not appreciate being left alone to guard the prisoner while his companions climbed into the security of antiradiation suits. As the last of the group disappeared, he sighed heavily, shifted his attention back to Danestar.

His eyes went huge with shocked surprise. The chair in which she had been sitting was empty. Decrain's hand flicked back to his gun holster, stopped as it touched it. He stood perfectly still.

Something hard was pushing against the center of his back below his shoulder blades.

"Yes, I've got it," Danestar whispered behind him. "Not a sound, Decrain! If you even breathe louder than I like, I'll split your spine!"

They waited in silence. Decrain breathed carefully while the voices and footsteps in the hall grew fainter, became inaudible. Then the gun muzzle stopped pressing against his back.

"All right," Danestar said softly —she'd moved off but was still close behind him—"just stand there now!"

Decrain moistened his lips.

"Miss Gems," he said, speaking with difficulty, "I was, you remember, a gentleman!"

"So you were, buster," her voice agreed. "And a very fortunate thing that is for you at present. But—"

Decrain dropped forwards, turning in the air, lashing out savagely with both heels in the direction of the voice. It was a trick that worked about half the time. A blurred glimpse of Danestar flashing a white smile above him and of her arm swinging down told him it hadn't worked now. The butt of the gun caught the side of his head a solid wallop, and Decrain closed his eyes and drifted far, far away.

She bent over him an instant, half minded to give him a second rap for insurance, decided it wasn't necessary, shoved the gun into a pocket of her coveralls and went quickly to the big table in the center of the office. Her control belt was there among the jumble of things they'd brought over from her room. Danestar fastened it about her waist,

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slipped on the white jacket lying beside it, rummaged hurriedly among the rest, storing the shortcode transmitter and half a dozen other items into various pockets before she picked up her emptied instrument valise and moved to the opposite end of the table where Galester had arranged the mechanisms he'd removed for examination from the false asteroid.

She'd had her eye on one of those devices since she'd been brought to the office. It was enclosed in some brassy pseudometal, about the size of a goose egg and shaped like one. Galester hadn't known what to make of it in his brief investigation and Dr. Hishkan had offered only vague conjectures; but she had studied it and its relationship to a number of other instruments very carefully on the night she'd been in Dr. Hishkan's vault and knew exactly what to make of it. She placed it inside her valise, went back to the collection of her own instruments, turned on the spy screen and fingered a switch on the control belt. The spy screen made a staccato chirping noise.

"I'm alone here," she told it quickly. "Decrain's out cold. Now how do I get out of this building and to some rendezvous point—fastest? Volcheme's gone lunatic, as you heard. I don't want to be anywhere near them when they start playing games with that animated slice of sheet lightning."

"Turn left when you leave the office," Wergard's voice said from the blank screen. "Take the first elevator two levels down and get out."

"And then?"

"I'll be waiting for you there."

"How long have you been in the building?" she asked, startled.

"About five minutes. Came over to pick up a couple of those antiradiation suits for us, which I have. The way things were going then, I thought I'd better hang around and wait for a chance to get you away from our friends. I was about to start upstairs when Volcheme and the others left. Then I heard a little commotion in the office and decided you'd probably done something about Decrain. So I waited."

"Bless you, boy!" Danestar said gratefully. "I'll be with you in a moment!"

She switched off the spy screen, went out of the office, skirting Decrain's harshly snoring form on the carpet, and turned left down the quiet hall.

The hideaway from which Corvin Wergard had been keeping an observer's eye on events in the Depot was one of a number he'd set up for emergency use shortly after their arrival. He'd selected it for operations today because, within a few seconds, he could reach an exit door in the building less than a hundred and twenty yards from both the control section and the outer barrier lock—potential critical points in whatever action would develop.

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Guiding Danestar back to it took minutes longer than either of them liked, but the route Wergard had worked out led almost entirely through structures shielded from the alien visitor by section defense screens.

She sat across the tiny room from him, enclosed in one of the bulky antiradiation suits, the shortcode transmitter on a wall shelf before her, fingers delicately, minutely, adjusting another of the instruments she had brought back from Hishkan's office. Her eyes were fixed on the projection field above the instrument. Occasional squigglings and ripples of light flashed through it—meaningless static. But she'd had glimpses of light patterns which seemed far from meaningless here, was tracking them now through the commband detector to establish the settings which would fix them in the visual projection field for study. That was a nearly automatic process—her hands knew what to do and were doing it. Her thoughts kept turning in nightmare fascination about other aspects of the gigantic raider.

What did they know about it? And what did it know about them?

That living, deadly energy body, or its kind, had not built the signaling device. If it was not acting for itself, if it had hidden masters in the Pit, the masters had not built the device either. Regardless of its origin, the instrument, though centuries old, still had been in use; and in the dust cloud, its value in establishing location, in permitting free, purposeful action, must be immense. But whoever was using it evidently had lacked even the ability to keep it in repair. Much less would they have been able to replace it after it disappeared—and they must be in mortal fear that mankind would discover the secrets of the instrument and return to meet them on even terms in the cloud. . .

So this creature had traversed deep space to reach Mezmiali and recover it.

Volcheme, accustomed to success in dealing with human opponents, was still confident his resourcefulness was sufficient to permit him to handle the emissary from the Pit. To Danestar it seemed approximately like attempting to handle an animated warship. The thing was complex, not simply an elemental force directed by a limited robotic mind. It had demonstrated it could use its energies to duplicate the human shortcode system, and the glimpse she'd had in the detector's field of one of its patterns implied it was capable of much more than had been shown so far. And it might not have come here alone. There could be others of its kind undetected beyond the Depot's barrier with whom it was in communication.

In the face of such possibilities, Volcheme's determination amounted to lunacy. They might have convinced the others of the

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need to call for outside help; but the intercom system had been shut off, evidently on the smuggler's orders, when Danestar's escape was discovered. For the moment, he had silenced them. Through various spy devices they knew he was co-ordinating the activities of his men with personal communicators, and that a sectional force barrier was being set up across the center of the main building, connected to the external ones. Completed, the barrier system would transform half the building into a box trap, open at the end. The men and the specimen from the Pit would be in the other half. When the monster flowed into the trap to get at them, observers in the control building would snap a barrier shut across the open end. The thing would be safely inside—assuming that barriers of sectional strength were impassable to it.

Volcheme's calculations were based entirely on that assumption. So far, nothing had happened to prove him wrong. The alien creature was still moving about the Depot. Wergard, before the multiple-view screen through which he had followed the earlier events of the day, reported glimpses of it every minute or two. There were increasing indications of purpose in its motions. It had passed along this building once, paused briefly. But it had shown itself three times about the control section, three times at the main building. Its interest appeared to be centering on those points.

Until it ended its swift, unpredictable prowling, they could only wait here. Wergard was ready to slip over to a personnel lock in the barrier about the control building when an opportunity came. A gas charge would knock out the men inside, and the main barrier would open long enough then to let out their prepared shortcode warning. Their main concern after that would be to stay alive until help arrived.

Their heads turned sharply as the shortcode transmitter on the shelf before Danestar gave its chattering pickup signal. She stood up, snapped the headpiece of her radiation suit into position, collapsed the other instruments on the shelf, slid them into the suit's pockets, and picked up the valise she'd brought back from Dr. Hishkan's office.

". . . Where . . . is . . . it . . . who . . . has . . . it . . ." whispered the transmitter.

"Pickup range still set at thirty yards?" Wergard asked.

"Yes," she said.

"There's nothing in sight around here."

Danestar glanced over at him. He'd encased himself in the other radiation suit. A small high-power energy carbine lay across a chair beside him. His eyes were on the viewscreen which now showed only the area immediately around the building. She didn't answer. The transmitter continued to whisper.

It wasn't in sight, but it was

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nearby. Very near. Within thirty yards of the transmitter, of the hideout, of them. And pausing now much longer than it had the first time it passed the building.

". . . I . . . want . . . it . . . where . . . is . . . it . . ."

Her skin crawled, icy and uncontrollable. If it had any way of sensing what she held concealed inside the valise, it would want it. She didn't think it could. No spying device she knew of could pierce the covering of the valise. But the egg-shaped alien instrument within—no bigger than her two fists placed together—was the heart and core of the specimen from the Pit, its black box, the part which must hold all significant clues to the range and penetrating power of its signals. Without it, the rest of the contents of that great boulder-shaped thing would be of no use now—to Volcheme or to the alien.

They waited, eyes on the viewscreen, ready to move. If the building was attacked and the creature showed it could force its way through the enclosing energy barrier, there was an unlocked door behind them. An elevator lay seconds beyond the door; and two levels down, they would be in the underground tunnel system where a transport shell waited. If they were followed, they would continue along the escape route Wergard had marked out, moving from barrier to barrier to slow the pursuer. Unless it overtook them, they would eventually reach the eastern section of the Depot, known as the Keep, where ancient defense screens formed so dense a honeycomb that they should be safe for hours from even the most persistent attacks.

But retreat would cost them their chance to make use of the control section—

The transmitter's whisper faded suddenly. For some seconds, neither stirred. Then Wergard said, relief sharp in his voice, "It may have moved off!"

He shifted the screen mechanism. A pattern of half a dozen simultaneous views appeared. "There it is!"

On the far side of the control building, flowing purple fire lifted into view along fifty yards of one of the Depot's streets like the back of a great surfacing sea beast, sank from sight again. Danestar hesitated, took the commband detector quickly out of her suit pocket, placed it on the wall shelf. She pressed a button on the little instrument and the projection field sprang into semivisibility above it.

Wergard, eyes shifting about the viewscreen, said, "It's still only seconds away from us. Don't get too absorbed in whatever you're trying to do."

"I won't."

Danestar released the bulky radiation headpiece, turned it back out of her way. Her fingertips slipped along the side of the detector, touched a tiny adjustment knob, began a fractional turn, froze.

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The visual projection she'd been hunting had appeared in the field before her.

A flickering, shifting, glowing galaxy of tiny momentary sparks and lines of light—the combined communication systems of a megacity might have presented approximately such a picture if the projector had presented them simultaneously. She licked her lips, breath still, as her fingers shifted cautiously, locking the settings into place.

When she drew her hand away, Wergard's voice asked quietly, "What's that?"

"The thing's intercom system. It's . . . let me think, Wergard! What's it doing now?"

"It's beside the control building." Wergard paused. He hadn't asked what her manipulations with the detector were about; she seemed to be on the trail of something, and he hadn't wanted to distract her.

But now he added, "Its behavior indicates . . . yes! Apparently it is going to try to pass through the section barrier there—!"

The viewscreen showed the ghostly, reddish glittering of an activated defense barrier along most of the solid front wall of the control building. Two deep-rose glowing patches, perhaps a yard across, marked points where the alien had come into direct contact with the barrier's energies.

It hadn't, Danestar thought, liked the experience, though in each case it had maintained the contact for seconds, evidently in a deliberate test of the barrier's strength. Her eyes shifted in a brief glance to the viewscreen, returned to the patterns of swarming lights in the projector field.

The reaction of the creature could be observed better there. As it touched the barrier, dark stains had appeared in the patterns, spread, then faded quickly after it withdrew. There was a shock effect of sorts. But not a lasting one. Danestar's breathing seemed constricted. She was badly frightened, and knew it. The section barriers couldn't stop this thing! Perhaps the men in the control building weren't aware of it yet. She didn't want to think of that—

She heard a brief exclamation from Wergard, glanced over again at the screen.

And here it comes, she thought.

The thing was rising unhurriedly out of the street surface before the control building, yards from the wall. When it tested the barrier, it had extruded a fiery, pointed tentacle and touched it to the building. Now it surged into view as a rounded, luminous column twenty feet across, widening as it lifted higher. The top of the column began to lean slowly forward like a cresting, ponderous wave, reached the wall, passed shuddering into it. The force field blazed in red brilliance about it and its own purple radiance flared, but the great mass continued to flow steadily through the barrier.

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And throughout the galaxy of dancing, scintillating, tiny lights in the projector field, Danestar watched long shock shadows sweep, darken, and spread—then gradually lighten and commence to fade.

When she looked again at the viewscreen, the defense barrier still blazed wildly. But the street was empty. The alien had vanished into the control building.

"It isn't one being," Danestar said. "It's probably several billion. Like a city at work, an army on the march. An organization. A system. The force field did hurt it—but at most it lost one half of one per cent of the entities that make it up in going through the barrier."

Wergard glanced at the projection field, then at her.

"Nobody in the control building had access to a radiation suit," he said. "So they must have been dead in an instant when the thing reached them. If it can move through a section barrier with no more damage than you feel it took, why hasn't it come out again? It's been in there for over four minutes now."

Danestar, eyes on the pattern in the projection field, said, "It may have been damaged in another way. I don't know—"

"What do you mean?"

She nodded at the pattern. "It's difficult to describe. But there's a change there! And it's becoming more distinct. I'm not sure what it means."

Wergard looked at the field a moment, shrugged. "I'll take your word for it. It's a jumble to me. I don't see any changes in it."

Danestar hesitated. She had almost intuitive sensitivity for the significance of her instruments' indications; and that something was being altered now, moment by moment, as the millonfold interplay of signals in the pattern seemed certain.

She said suddenly, "There's a directing center to the thing, of course, or it couldn't function as it does. Before it went through the force field, every part of it was oriented to that center. There was a kind of rhythm to the whole which showed that. Now, there's a section that's going out of phase with the general rhythm."

"What does that add up to?"

Danestar shook her head. "I can't tell that yet. But if the shock it got from the barrier disrupted part of its internal communication system, it might be, in our terms, at least partly paralyzed now. A percentage of the individual entities—say about one tenth—are no longer coordinating with the whole, are disconnected from it. Of course, we can't count on it, but it would explain why it hasn't reappeared—"

Both were silent a moment. Then Wergard said, "If it is immobilized, it killed everyone in the control building before the shock got through to it. Otherwise we would have had indications of action by Volcheme by now."

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She nodded. The intercom switch on the viewscreen was open, but the system remained dead. And whatever the smuggler and the group in the main building were engaged in, they were not at present in an area covered by her spy devices. But the space shuttle had not left the building, so they were still there. If the creature from the Pit was no longer a menace and Volcheme knew it, every survivor of the gang would be combing the Depot for traces of Wergard and herself. Since they weren't, Volcheme had received no such report from the control building. Whatever else had happened, the men stationed there had died as the alien poured in through the barrier.

Her breath caught suddenly. She said, "Wergard, I think . . . it is trying to come out again!"

"The barrier's flickering," he acknowledged from the viewscreen. An instant later, "Full on now! Afraid you're right! Watch for signs of damage. If it isn't crippled, and if it suspects someone is here, it may hit this building next, immediately! It isn't in sight—must be moving out below ground level."

Danestar snapped the radiation headpiece back in position without taking her eyes from the projection field. Shock darkness crisscrossed the pattern of massed twinkling pinpoints of brightness again, deepened. She could judge the thing's rate of progress through the barrier by that now. There were no indications of paralysis; if anything, its passage seemed swifter. Within seconds, the darkness stopped spreading, began to fade. "It's outside," she said. "It doesn't seem seriously injured."

"And it's still not in sight," said Wergard. "Stay ready to move!"

They were both on their feet now. The shortcode transmitter on the shelf was silent, but this time the creature might not be announcing its approach. Danestar's eyes kept returning to the projection field. Again the barrier had achieved minor destruction, but she could make out no further significant changes. The cold probability was now that there was no practical limit to the number of such passages the creature could risk if it chose. But something about the pattern kept nagging at her mind. What was it?

A minute passed in a humming silence that stretched her nerves, another . . . and now, Danestar told herself, it was no longer likely that the monster's attention would turn next to this building, to them. The barrier had remained quiet, and there had been no other sign of it. Perhaps it wasn't certain humans were hiding here; at any rate, it must have shifted by now to some other section of the Depot.

Almost with the thought, she saw Wergard's hand move on the viewscreen controls, and in the screen

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the area about them was replaced by a multiple-view pattern.

Nothing stirred in the various panels; no defense field was ablaze about any of the buildings shown. The entire great Depot seemed empty and quiet.

"At a guess," Wergard remarked thoughtfully, "it's hanging around the main building again now!" He moved back a step from the screen, still watching it, began to unfasten his antiradiation suit.

"What are you doing?" she asked.

He glanced over at her. "Getting out of it. One thing these suits weren't made for is fast running. I expect to be doing some of the fastest running in my career in perhaps another minute or two."

"Running? You're not—"

"Our alien," Wergard said, "should take action concerning Volcheme's boys next. But whatever it does, the instant we see it involved somewhere else, I'll sprint for the control building. It may be the last chance we get to yell for help from outside. And I don't want to be slowed down by twenty pounds of suit while I'm about it."

Danestar swallowed hard. He was right. But there was something, a feeling—

"No! Don't go there!" she said sharply, surprising herself.

He looked around in bewilderment. "Don't go there? What are you . . . watch that!"

His eyes had shifted back to the screen. For an instant, she couldn't tell what he had seen. Then, just as the view began to blur into another, she found it.

Volcheme's space shuttle had darted out of the cover of the main building, swung right, was flashing up a wide street towards the eastern section of the Depot.

"Making a run for the Keep!" Wergard said harshly. He fingered the controls, following the shuttle from view section to view section. "They might just . . . no, there it is!"

The great fire body, flattened, elongated, whipped past between two warehouse complexes, a rushing brightness fifty feet above the ground, vanished beyond the buildings.

"Too fast for them!" Wergard shook his head. "It knows what they're doing and is cutting them off. Perhaps their guns can check it! You watch what happens—I'm going now."

"No! I . . ."

Then at last the realization surged up. Danestar stared at him, completely dismayed.

"It's a trap," she said evenly. "Of course!"

"What is? What are you talking about?"

"The control building! Don't you see?" She jerked her head at the projection field. "I *said* a section of the thing was splitting off from the main body! When it came out through the barrier again, *that* section wasn't showing any shock ef-

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fects—I saw it but didn't understand what it meant. Of course! It didn't come through the barrier at all. It's still *in there,* Wergard! In the control building. Waiting for any of us to show up. There're two of them now—"

She watched stunned comprehension grow in his face as she spoke.

The smugglers' shuttle was caught not much more than a minute later. It had discovered the enemy between it and the Keep section, turned back. When the space thing followed, tiny bursts of dazzling white light showed the shuttle's energy guns were in action. The fire body jerked aside and paused . . . and now the shuttle turned again, flashed straight at its pursuer, guns blazing full out.

For a moment, it seemed a successful maneuver. The great creature swept up out of the path of the machine, slipped over the top of a building, disappeared. The shuttle rushed on towards the Keep—and at the next corner a loop of purple radiance snared it, drove it smashing into a building front. The fire giant flowed down, sent the shuttle hurtling against the building again, closed over it. For seconds, the radiance pulsed about the engulfed vehicle, then lifted into the air, moved off. There was no sign of the shuttle until, some hundreds of yards away, the fire body opened to let the shattered machine slide out, drop to the surface of the Depot. Its lock door was half twisted away; and Volcheme and his companions clearly were no longer within it.

To Danestar, watching in sick fascination, it had seemed as if a great beast of prey had picked up some shelled, stinging creature, disarmed it, cracked it to draw out the living contents, and flung aside the empty shell.

The alien swung west, towards the central section of the Depot, seemed to be returning to the main building complex, but then flowed down to the surface, sank into it and vanished.

Minutes passed and it did not reappear. Again the Depot's sections stood quiet and lifeless in the viewscreen.

"It may be waiting for somebody else to break from cover," Wergard said suddenly. "But you'd think the first thing it would do now is push into the main building and get its gadget! Volcheme must have left it there—the thing wouldn't have slammed the shuttle around like that if it hadn't been sure the contraption wasn't inside!"

Danestar didn't reply. Their nerves were on edge, and Wergard was simply thinking aloud. They had no immediate explanation for the thing's behavior. But it had been acting purposefully throughout, and there must be purpose in its disappearance.

All they could do at present was wait, alert for signs of an approach

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on any level. She had discarded her antiradiation suit, as Wergard had done previously. The men in the shuttle might have gained a second or two of life because of the protection the suits gave them; but against so overwhelmingly powerful a creature they obviously had made no real difference. And they were cumbersome enough to be a disadvantage in other respects. If there were indications that the second energy body, the smaller one in the control building, had left it, Wergard would still attempt a dash over there.

There were no such indications. There were, in fact, no indications of any kind of activity whatever until, approximately ten minutes after it vanished, the big space creature showed itself again.

It was rising slowly from the ground into the square before the deserted main building when Wergard detected it in the screen. Then, while they watched, it flowed deliberately up to the building and into it.

And no defending force fields flared into action.

As it disappeared, they exchanged startled looks. Wergard said quickly, "Volcheme must have had the barriers shut off just before they left by the lock—so the thing could pick up its device . . . ."

"And let them get away?" Danestar hesitated. There'd been talk of that before she escaped from Volcheme's group. But she was not at all certain that the smuggler, even under such intense immediate pressures, would abandon his prize completely. The flight might even have been designed in part to draw the raider away from it.

"Otherwise"—Wergard scowled, chewed his lip—"has there been anything in the projection pattern to show it's split again?"

She shook her head. "No. But if you're thinking it could detach a section small enough to get in through a personnel lock and turn off the building's barrier—"

"That's what I'm thinking."

Danestar shrugged, said, "I wouldn't be able to tell that, Wergard. I've been watching the projection. But it would be too minor a difference to be noticeable. It may have done it."

He was silent a moment. "Well," he said then, "it has the gadget it came for now. We'll see what it does next." He added, without changing tone, "Incidentally, it doesn't have all of it, does it?"

Danestar gave him a startled glance.

"How did you guess?" she asked.

A half-grin flicked over Wergard's tense face. "It's the sort of thing you'd do. You've been hanging on to that valise as if there were something very precious inside."

"There is," Danestar agreed. "It's not very big, but the specimen won't work without it. And when those things in the Pit realize it's gone, they won't be able to replace it."

"Very dirty trick!" Wergard said

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approvingly. He glanced at the valise. "Supposing we manage to get out of this alive—how useful could the item become?"

"Extremely useful, if it gets to really capable people. As far as I could make out, it must embody all the essentials of that system."

Wergard nodded. "We'll hang on to it then. As long as we can, anyway. We may have to destroy it, of course. Think the thing could spot there's a part missing?"

"It could if it has a way of testing it," said Danestar. "But the specimen's been reassembled and resealed—nothing will show . . . There the creature comes now!"

They watched its emergence from the main building. It poured out of the landing lock area, swung west across the central square, moving swiftly. It might be carrying the specimen with it, as it had carried the shuttle.

"Coming back here!" Wergard remarked, some seconds later. "And if it can open sectional barriers, it can open the main Depot lock in the control building!"

Danestar knew what he meant. The Pit creature might believe it had achieved its objective in regaining the lost signaling instrument and simply leave now. She began to feel almost feverish with hope, warned herself it was much more probable it did not intend to let any human being in the Depot remain alive to tell about it.

Her gaze shifted again to the patterns in the projection field. No further changes had been apparent, but a sense of dissatisfaction; of missing some hidden significance, still stirred in her each time she studied them. *I'm not seeing everything they should tell me,* she thought. She shook her head tiredly. Too much had happened these past hours! Now her thinking seemed dulled.

She heard Wergard say, "It's stopped for something!"

It had come to an intersection, paused. Then suddenly it veered to the right, moved swiftly past three buildings, checked again before a fourth. A probing fire tentacle reached towards the building. Defense barriers promptly blazed into activity.

The creature withdrew the tentacle, remained where it was, half submerged in the street. Activated by its proximity, the defense field continued to flare while one or two minutes passed. Then the field subsided, vanished. The creature moved forwards until some two thirds of it appeared to be within the building. Barely seconds later, it drew back again, swung away. . . .

"It caught somebody inside there!" Wergard said. "It couldn't have been looking for anything else. How did it know some poor devils had holed up in that particular section?"

The intercom signal on the view-

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screen burred sharply with his last words, then stopped. They stared at it, glanced at each other. Neither attempted to move towards the switch.

The intercom began ringing again. It rang, insistently, jarringly, with brief pauses, for a full minute now before it went silent.

"So that's how!" Wergard said heavily. He shrugged. "Well, if it—or a section of it—can manipulate a barrier lock and reproduce short-code impulses, it can grasp and manipulate an intercom system. Not a bad way to locate survivors. If we don't answer. . . ."

"We can't stay here anyway," Danestar told him, frowning at the projection field. She had spoken in an oddly flat, detached manner.

"No. It's mopping up before it heads home—and now it can apparently cut off every sectional barrier that isn't locally maintained directly from the control building! It won't be long before it discovers that—if it hasn't already done it!" Wergard picked up the energy gun. "Grab what you need and let's move! I've thought of something better than trying to make it to the Keep and playing hide-and-seek with it there. With the tricks it's developed, we wouldn't last—" He looked over, said quickly, sharply, "Danestar!"

Danestar glanced around at him, bemused, lips parted. "Yes? I . . ."

"Wake up!" Wergard's voice was edged with nervous impatience. "I think I can work us over to the section the thing just cleared out. If we leave the barrier off, there's a good chance it won't check that building again. Let's not hang around here!"

"No." She shook her head, turned to the instruments on the shelf. "You've got to get me to our quarters, Wergard—immediately!"

"From here? Impossible! There're several stretches—over three hundred yards in all—where we'd be in the open without the slightest cover. It's suicide! We—"

Wergard checked himself, staring at her. "You've thought up something? Is it going to work?"

"It might, if we can get there."

He swore, blinked in scowling reflection.

"All right!" he said suddenly. "Can do—I hope! Tell me on the way or when we're there what you're after. We'll make a short detour. There's something else I could do to keep our friend occupied for a while. It may buy us an additional twenty, thirty minutes. . . ."

Hurrying up a narrow, dim passage behind Wergard, Danestar felt clusters of eerie fears hurrying along with her. Wergard swung on at a fast walking pace. Now and then she broke into a run to keep up with him, and when she did, he slowed instantly to let her walk again. It was sensible—they might have running enough to do very shortly. But staying sensible about it wasn't easy. Her legs *wanted* to run.

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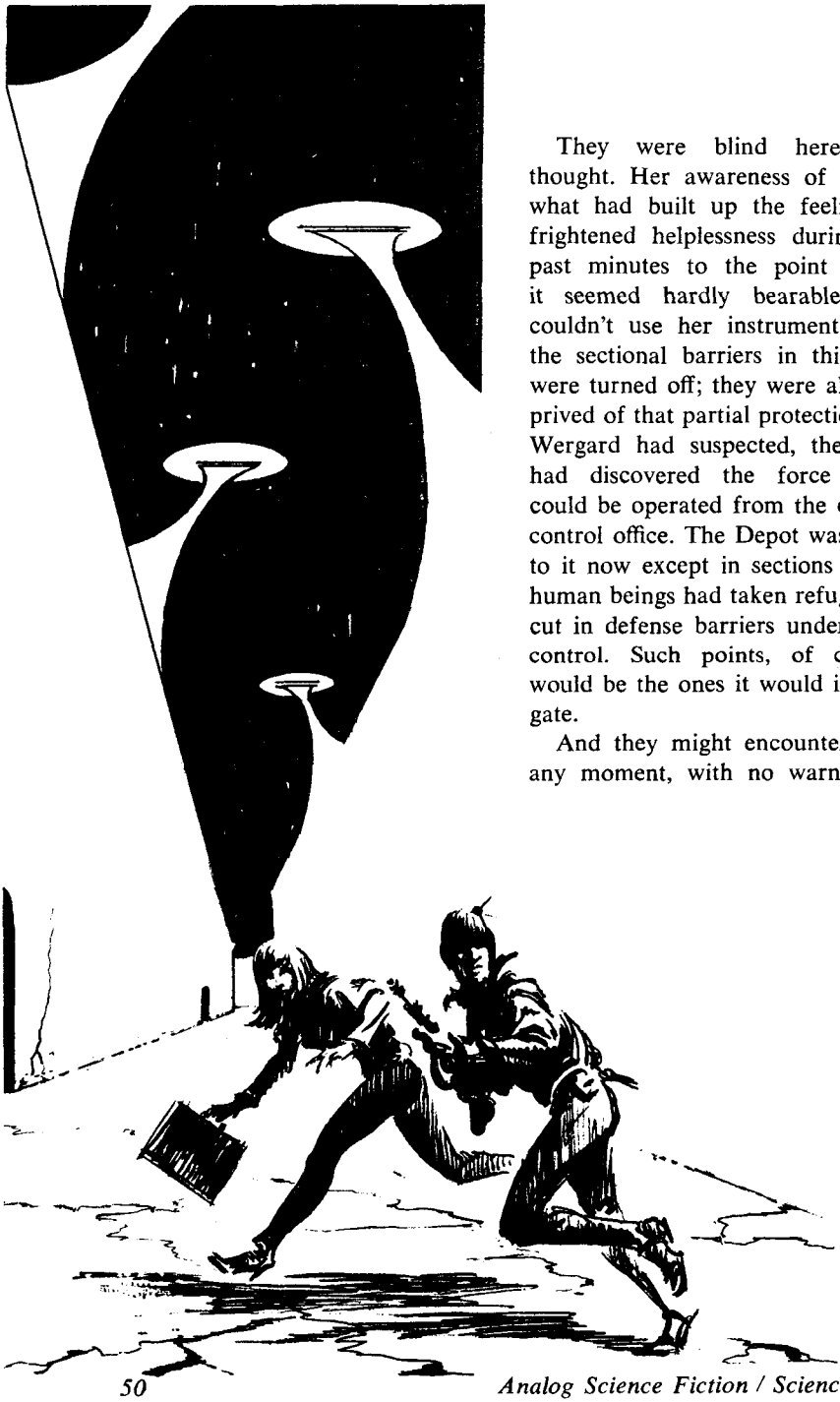

They were blind here, she thought. Her awareness of it was what had built up the feeling of frightened helplessness during the past minutes to the point where it seemed hardly bearable. She couldn't use her instruments, and the sectional barriers in this area were turned off; they were also deprived of that partial protection. As Wergard had suspected, the alien had discovered the force fields could be operated from the central control office. The Depot was open to it now except in sections where human beings had taken refuge and cut in defense barriers under local control. Such points, of course, would be the ones it would investigate.

And they might encounter it at any moment, with no warning at

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all. Whether they got through to their quarters had become a matter of luck—good luck or bad—and Danestar, who always prepared, always planned, found herself unable to accept that condition.

Wergard halted ahead of her; and she stopped, watched him cautiously edge a door open, glance out. He looked back, slid the energy carbine from his shoulder, held it in one hand, made a quick, beckoning motion with the other. Danestar followed him through the door and he eased it back into its lock. They had come out into one of the Depot's side streets. It stretched away on either side between unbroken building fronts, a strip of the dull black dome of the main barrier arching high above.

They darted across the street, ran fifty feet along the building on the far side before Wergard stopped at another door. This one opened on a pitch dark passage; and, a moment later, the darkness closed in about them.

Wergard produced a light, said quietly, "Watch your step here! The section was sealed off officially fifty years ago and apparently hasn't been inspected since."

He moved ahead, rapidly but carefully, holding the light down for her. They were some five minutes from their starting point. Beyond that, Danestar did not know what part of the Depot they'd come to, but Wergard had told her about this building. It had been part of the old fortress system, cheaper to seal off than remove, an emergency unit station which operated the barrier defenses of the complexes surrounding it. If the equipment was still in working order, Wergard would turn on those barriers. Approximately a tenth of the Depot would again be shielded then, beyond manipulation by the control office. That should draw the Pit creature's attention to the area, while they moved on. Their living quarters were in a building a considerable distance away.

Eyes shifting about, Danestar followed the pool of light dancing ahead of her feet. The flooring was decayed here and there; little piles of undefinable litter lay about, and the air was stale and musty. Wergard, in his prowling, might, in fact, have been the first to enter the building in fifty years. They turned a corner of the passage, came to a dark doorspace. There he stopped.

"You'd better wait here," he told her. "There's a mess of machinery inside and some of it's broken. I'll have to climb around and over it. If the barrier system is operating, I'll have it going within three or four minutes."

He vanished through the door. Danestar watched the receding light as it moved jerkily deeper into a forest of ancient machines, lost it when it went suddenly around a corner. There was complete darkness about her then. She fingered a lighter in her pocket but left it

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there. No need to nourish the swirling tide of apprehensions within her by peering about at shadows. Darkness wasn't the enemy. After a minute or two, she heard a succession of metallic sounds in the distance. Presently they ended, and a little later Wergard returned. He was breathing hard and his face was covered with dirt-streaked sweat.

"As far as I can make out, the barriers are on," he said briefly. "Now we'd better get out of the neighborhood fast!"

But they made slower overall progress then before, because now they had to use the personnel locks in the force fields as they moved from one complex section to the next. In between, they ran where they could. They crossed two more side streets. After the second one, Wergard said, "At the end of this building we'll be out of the screened area."

"How far beyond that?" Danestar asked.

"Three blocks. Two big sprints in the open!" He grimaced. "We *could* use the underground systems along part of the stretch. But they won't get us across the main streets unless we follow them all the way to the Keep and back down."

She shook her head. "Let's stick to your route." A transport shell of the underground system could have taken them to the Keep and into the far side of the Depot in minutes. But its use would register on betraying instruments in the control building, and might too easily draw the alien to the moving shell.

The personnel lock at the other end of the building let them into a narrow alley. Across it was the flank of one of the Depot's giant warehouses. As they started along the alley, there was a crackling, spitting, explosive sound—the snarl of a defense field flashing into action.

Wergard reached out, snatched the valise from Danestar's hand.

"Run!"

They raced up the alley. The furious crackle of the force field came from behind them, from some other building. It was not far away; and it was continuing. A hundred yards on, Wergard halted abruptly, caught Danestar as she plowed into him, thrust the valise back at her.

"Here—!" he gasped. She saw they'd reached a door to the warehouse; now Wergard was turning to open it. Clutching the valise, thoughts a roiling confusion of terror, she looked back, half expecting to see a wave of purple fire sweeping up the alley towards them.

But the alley was empty, though the building front along which the barrier blazed was only a few hundred yards away. Then, as Wergard caught her arm, hauled her in through the door, a closer section—the building from which they had emerged a moment before—erupted in glittering fury. The door slammed in back of her, and they were running again, through a great

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hall, along aisles between high-stacked rows of packing cases. And —*where was the valise?* Then she realized Wergard had taken it.

She followed him left into a cross-aisle . . . another turn to the right; and the end of the hall was ahead, a wide passage leading off it. She had a glimpse of Wergard's strained face looking back for her; then, suddenly, he swerved aside against the line of cases, crouched, his free arm making a violent gesture, motioning her to the floor.

Danestar dropped instantly. A moment later, he was next to her.

"Keep . . . down!" he warned. *"Way . . .* down!"

Sobbing for breath, flattened against the cases, she twisted her head around, saw what he was staring at over the stacked rows behind them. A pale purple reflection went gliding silently along the ceiling at the far end of the hall, seemed to strengthen for an instant, abruptly faded out.

They scrambled to their feet, ran on into the passage.

Even after they'd slowed to a walk again, were in the structure beyond the warehouse, they didn't talk about it much. Both were badly winded and shaken. It had been difficult to believe that the thing could have failed to detect them. Its attention must have been wholly on the force fields it was skirting, even as a section of it flowed through the warehouse hall within a few hundred feet of them.

If they'd been a few seconds later reaching the alley—

Danestar reached into her white jacket, turned on its cooling unit. Wergard glanced at her. His face was dripping sweat. He wiped at it with the back of his sleeve.

She asked, "You're still wearing the sneaksuit?"

Wergard lifted a strand of transparent webbing from under his collar, let it snap back. "Think it might have helped?"

"I don't know." But the creature might have the equivalent of a life detector unit as part of its sensory equipment, and a sneaksuit, distorting and blurring the energy patterns of a living body, would perhaps afford some protection. She said, "I'll get into one as soon as we reach our quarters. It may have known somebody was around but didn't want to waste time picking up another human until it found out why the defense barriers were turned on again in that area."

Wergard remarked dubiously, "It seems to me it's got picking up humans at the top of its priority list!" After a moment, he added, "The long sprint comes next. Feel up to it?"

Danestar looked over at him. "I'd better feel up to it! If we see that thing again—I'm one inch this side of panic right now!"

He grunted. "Quit bragging!" He slid the carbine from his shoulder. "It's that door ahead. Let me have a look out first."

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As he began to unlock the door, Danestar found herself glancing back automatically once more at the long, lit, empty corridor through which they had come, their hurried steps echoing in the silence of the building. Then she saw Wergard had paused, half crouched and motionless, at the barely opened door.

"What is it?" she asked quickly.

"I don't know!" The face he turned to her was puzzled and apprehensive. "Come up and take a look!"

She moved to where she could look out past him. After a moment, she said, "There are adjustment instruments for the Depot lighting somewhere in the control section."

"Uh-huh," said Wergard. "Another item that's been sealed away for a hundred years or so. But our Number Two Thing in the control building seems to have got to them. I'd like to know what it means."

He opened the door wider. Both moved forward carefully, glancing along the street outside.

This was one of the main streets of the Depot. Across from them, eighty yards away, was the massive white front of the structure which housed the central generators. Approximately two hundred yards to the left, it was pierced by a small entrance door which was the next step on Wergard's route to their quarters. To west and east, the street stretched away for half a mile before rows of buildings crossed it.

But all this was in semidarkness now—too dim to let them make out the door in the wall of the generator building from where they stood. A hazy brightness above the line of buildings across the street indicated the rest of the Depot was still flooded by the projection lighting system which was that of the old fortress—wearproof and ageless. If not deliberately tampered with, it would go on filling the Depot with eternal day-brightness for millennia.

But something had tampered with it—was still tampering with it. As they looked, the gloom along the street deepened perceptibly, then, slowly, lightened to its previous level.

"There can't be much light in the Pit, of course," Wergard said, staring up the street to the west. The control section, Danestar realized suddenly, lay in that direction. "It may be trying to improve visibility in the Depot for its perceptions."

"Or," said Danestar, "ruin visibility for ours."

Wergard looked at her. "We don't have the time left to try another route," he said. "Whatever it's doing, we may make a mistake in crossing the street while it's experimenting. But waiting here makes no sense—"

She shook her head. "The intention might be to keep us waiting here."

"Uh-huh! I thought of that. So let's go. Right now. Top speed across. I'll stay behind you."

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For an instant, Danestar hesitated. The feeling that the uncertain darkness of the wide street was under the scrutiny of alien senses, that they would be observed and tracked, like small, scuttling animals, as soon as they left the shelter of the doorway, became almost a conviction in that instant. The fact remained that they could not stay where they were. She tightened her grip on the handle of the valise, drew a deep breath, darted out.

They were half across when the darkness thickened so completely that they might have been shifted in mid-stride into a black universe. Blind, she thought. It was like an abrupt mental shock. She faltered, almost stumbled, felt she had swerved from the line she was following, tried to turn back to it . . . suddenly didn't know in which direction to move. Panic closed in.

"Wergard!"

"That way!" His voice, hoarse and strained, was on her right, rather than behind her. As she turned towards it, his light flicked on, narrowed to a pale thread, marking a small circle on the wall of the generator building ahead of Danestar. She was hurrying towards the wall again as the thread of light cut out . . . and seconds later, the wall and the street began to reappear, dim and vague as before, but tangibly present. They reached the wall together, turned left along it. Again the street darkened, became lost in absolute blackness.

Wergard's hand caught her arm. "Just walk—" He added something, muttered and indistinct, which might have been a curse. They went on, breathing raggedly. Wergard's hand remained on Danestar's arm. The darkness lightened a trifle, grew dense again. "Hold on a moment!" Wergard said, very softly.

She stopped instantly, stood unmoving, let her breath out slowly. Wergard's hand left her arm. She had an impression of cautious motion from him, decided he'd raised the carbine to fire-ready position.

He'd speak when he thought he could. Danestar's eyes shifted quickly, scanning the unrelieved dark about them. The only audible sound was a dim, faint hum of machinery from within the structure on their right.

Then she realized something had appeared in her field of vision.

It was ahead and to the left. A small, pale patch of purple luminance, moving swiftly but in an oddly jerky manner, its outline shifting and wavering, as it approached their path at what might be a right angle. How far away? If it were touching the ground, Danestar thought, or just above it, it must be at least two hundred yards farther up the street. That made it a considerably larger thing than her first impression had suggested.

As these calculations flicked through her mind, their object passed by ahead, moved on to the right, abruptly vanished.

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"You saw it?" Wergard whispered a moment later.

"Yes."

"Went in between a couple of buildings. Not so good—but it was some distance off. We don't seem to have been noticed. Let's go on."

Wergard had glimpsed another of the minor fire shapes just before they stopped. That one had been smaller—or farther away—and had been in sight only for an instant, on the left side of the street.

"They shouldn't be too large to get through a personnel lock and switch off a barrier for Thing Number One," he said, as they hurried along a catwalk in the generator building. "But that doesn't necessarily mean Number One is in this area."

"Scouts," Danestar suggested.

That had been Wergard's thought. The Pit creature could have split off several dozen autonomous sections of itself of the size they had observed without noticeably reducing its main bulk, and scattered them about the Depot to speed up its search for any humans still hiding out. The carbine couldn't have done significant damage to the alien giant but should have the power to disrupt essential force patterns in these lesser replicas. "They don't make things easier," Wergard said, "but we'll have to show ourselves only this once more. After that, we'll have cover. And we can change our tactics a little . . ."

At the end of the generator building was the central street of the Depot, somewhat wider than the last one they had crossed. It was almost startling to find it normally lit. Directly opposite was the entrance recess to another building. This was the final open stretch on the way to their quarters. Wergard wiped his forehead, asked, "Want to try it?"

Danestar nodded. She felt lightly tensed, not at all tired. Dread had its uses—her body had recognized an ultimate emergency and responded. She thought it would go on running now when she called on it until it fell dead.

Wergard was wearing a sneak-suit; she wasn't. It was possible they were being followed, that the light-shapes they'd seen were casting about in the area for the source of the life energy they'd detected here, of which she was the focus. In that case, getting across the central street might be the point of greatest danger. They'd decided she should go first while Wergard covered her with the carbine. He would follow as soon as she was within the other building.

She slipped out the door ahead of him, drew a deep breath, ran straight across the too-silent, bright-lit street towards the entrance recess.

And nothing happened. The carbine stayed quiet. The paving flowed by, and it seemed only an instant then before the building front

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swayed close before her. Danestar flung herself into the recess, came up gasping against the wall.

A door on the left, Wergard had said. Where—she discovered it next to her, pulled it open.

For a moment, her mind seemed about to spin into insanity. Then she was backing away from the door, screaming with all her strength, while two shapes of pale fire glided out through it towards her. Somewhere, she heard the distant sharp snarl of the carbine. A blizzard of darting, writhing lines of purple light enveloped her suddenly, boiled in wild turmoil about the recess. The closer of the shapes had vanished; and the carbine was snarling again.

Abruptly, her awareness was wiped out.

"Got your third setting now, I think!" Wergard said.

Danestar glanced at him. He sat at a table a few feet to her left, hunched forwards, elbows planted on the table, face twisted in concentration as he peered at the tiny, paper-flat instrument in his left hand.

"Uh-huh, that's it!" He sighed heavily. "Four to go . . ." His right forefinger and thumb closed cautiously down on the device, shifted minutely, shifted back again. It was an attachment taken from Danestar's commband detector. She had designed it, used it on occasion to intrude on covert communications in which she had a professional interest, sometimes blanking a band out gently at a critical moment, sometimes injecting misinformation.

But it was an instrument designed for her fingers, magical instruments themselves in their sensitized skill, deftness and experience. It had not been designed for Wergard's fingers, or anyone else's; and the only help she could give him with it was to tell him what must be done. Both hands were needed to operate the settings, and at present she couldn't use her left hand. What had knocked her out in the building entrance, an instant before Wergard's gun disrupted the second of the two Pit things that surprised her there, seemed to have been the approximate equivalent of a near miss from a bolt of lightning. Wergard had carried her two Depot blocks to their quarters, was working a sneaksuit over her, before she regained consciousness. Then she woke up suddenly, muscles knotted, trying to scream, voice thick and slurred when she started to answer Wergard's questions. They discovered her left side was almost completely paralyzed, her tongue partly affected.

As soon as he could make out what she wanted, what her plan had been, Wergard hauled her down to the ground-level barrier room of the building, along with an assortment of hastily selected gadgetry, settled her in a chair next to the barrier

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control panel, arranged the various instruments on a table before her where she could reach them with her right hand. Then he went to work on the attachment's miniature dials to adjust them to the seven settings she'd told him were needed.

He swore suddenly, in a gust of savage impatience, asked without looking up, "How long—counting the interruption—have I been playing around with this midget monster of yours?"

"Sixteen minutes," Danestar told him. The paralysis had begun to lift; she could enunciate well enough again, though the left side of her face remained numb. But she still couldn't force meaningful motion into her left hand. If she had been able to use it, she wouldn't have needed a quarter of a minute to flick in the dial readings, slap the attachment back into the detector. It was a job no more involved than threading a series of miniature needles. The problem was simply that Wergard's hands weren't made for work on that scale, weren't trained to it.

"Sixteen minutes!" he groaned. His face was beaded with the sweat of effort. "Well, I seem to be getting the hang of it. Our luck may hold up."

It might, she thought. It was still a matter of luck. They'd had good luck and bad luck both during the past half hour. Until now, the main alien body had been engaged in the cluster of activated defense barriers on the north side of the Depot. The viewscreen on the table showed her the intermittent flickering of force fields there; now and then, a section blazed bright for half a minute or more. And sometimes she'd seen the great purple glow passing among the buildings. While it remained in that area, they had time left. But the barriers were being shut off, one by one. Detached work segments of the thing usually would be able to enter by a personnel lock and cut the controls. And—perhaps when the locks could not be immediately found—the main body was again driving directly through the force fields and absorbing what damage it must to get into a protected building.

During the past four minutes alone, it appeared to have passed through three such sectional barriers. Changes in the detector's visual pattern revealed the damage. The accumulated effect was not inconsiderable.

Danestar's gaze went to the locked instrument valise, lying on the table between the detector and the shortcode transmitter, in immediate reach of her right hand. Within it was still the alien instrument she'd taken from Dr. Hishkan's office, the small, all-essential co-ordinating device without which the artificial asteroid from the cosmic cloud was a nonoperative, meaningless, useless lump of deteriorating machinery.

Had the alien mind discovered it

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wouldn't function, that the humans here had removed a section of it?

She thought it had. The repeated acceptance, during these last minutes, of the destruction of whole layers of its units in the raging force fields, to allow it to reach the barrier controls more quickly, suggested a new urgency in its search for human survivors. It would have been logical for it to assume that whoever had the missing instrument had sought refuge in the one area still shielded by multiple barriers.

But when the last of those defense fields was shut off and the last of the northern buildings hunted through, the creature would turn here. In that, their luck had been bad—very bad! To avoid attracting attention to the building, they'd planned to leave its barrier off as long as possible. They were in sneaksuits, perhaps untraceable. They might have remained undetected indefinitely.

But they had been in the barrier room only a few minutes before one of the prowling segments found them. Danestar had the streets along two sides of the building under observation, and nothing had been in sight there. Evidently, the thing had approached through an adjacent building. Without warning, it erupted from an upper corner of the room, swept down towards them. Danestar barely glimpsed it before Wergard scooped up the carbine placed across the table beside him and triggered it one-handed.

The segment vanished, as its counterparts in the building entry had done, in an exploding swirl of darting, purple-gleaming lines of light. The individual energy entities which had survived the gun's shock-charge seemed as mindless and purposeless as an insect swarm whirled away on a sudden gust of wind. Danestar had slapped on the building's defense fields almost as Wergard fired; and in seconds, the indicators showed the fields flickering momentarily at thousands of points as glittering purple threads flashed against them and were absorbed. Within a minute, the building was clear again.

But almost immediately afterwards, the barrier was impacted in a far more solid manner; and now the viewscreen showed a sudden shifting and weaving of fire shapes in one of the streets beside the building. Four or five segments had appeared together; one had attempted to slip into the building and encountered the force field. Lacking the protective bulk of the main body, it was instantly destroyed. The others obviously had become aware of the danger.

"If they can find the personnel lock here, they might try that!" Wergard remarked.

He placed Danestar's instrument carefully to one side on the table, stood waiting with the gun. The entry surface of the lock was in the wall across from them, ringed in warning light to show the field was

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active. Danestar kept her eyes on the control panel. After a moment, she said sharply, "They have found the lock!" A yellow light had begun to flash beside the field indicators, signaling that the lock was in use. As it began to open on the room, the carbine flicked a charge into it, and the purple glow within exploded in glittering frenzies.

The attempt to use the lock wasn't repeated. The scouting segments were not in themselves an immediate danger here. But in the open, away from the building, where they could bring their destructive powers into play, a few of them should be more than a match for the gun. To retreat again to some other point of the Depot had become impossible. The things remained in the vicinity and were on guard, and other segments began to join them.

That made it simply a question of how many minutes it still would be before the main body appeared to deal with the humans pinned down in this building. Neither Wergard nor Danestar mentioned it. They'd had good luck and bad, lasted longer than there had been any real reason to expect; now they'd run out of alternative moves. Nothing was left to discuss. Wergard had laid the carbine aside, resumed his carefully deliberate groping with the spidery dials of Danestar's device. Danestar watched the instruments; and the instruments, in their various ways, watched the enemy. A tic began working in the corner of Wergard's jaw; sweat ran down his face. But his hands remained steady. After a time, he announced he had locked in the first setting. Then the second, and the third . . .

There were developments in the instruments Danestar didn't tell him about. That the main body of the alien was absorbing savage punishment in its onslaught on the force fields became increasingly evident. The detector's projection field pattern almost might have been that of a city undergoing an intermittent brutal barrage. Blacked-out sections remained lifeless now, and there were indications of an erratically spreading breakdown in general organization.

But it should know, she thought, how much of that it could tolerate. Meanwhile it was achieving its purpose with frightening quickness. Barrier after barrier blazed in sudden fury along the line of search through the northern complex, subsided again. The viewscreen panel kept shifting as Danestar followed the thing's progress. Then she cut in one more panel, and knew it was the last. The alien had very little farther to go.

She switched the screen back momentarily to the local area, the streets immediately around their building. There was evidence here, she thought, in the steadily increasing number of ghostly, darting light shapes beyond the barrier, that

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alien control of the Depot was almost complete. The segments had been sent through it like minor detachments of an invading army to make sure no humans were left in hiding anywhere. They were massing about this building now because the composite mind knew that within the building were the only survivors outside of the northern complex.

The thing was intelligent by any standards, had used its resources methodically and calculatingly. The major section which had been detached from it, after it captured the control building, apparently had remained there throughout, taking no part in other action. That eliminated the possibility that humans might escape from the Depot or obtain outside help. Only during the past few minutes, after the alien mind was assured that the last survivors were pinned down, had there been a change in that part of the pattern in the projector field. The thing seemed to be on the move now, filling some other role in the overall plan. Perhaps, Danestar thought, it would rejoin the main body as a reserve force, to make up for the losses suffered in the barrier. Or it might be on its way here.

Wergard said absently, as if it had occurred to him to mention in passing something that was of no great interest to either of them, "Got that fourth setting now—"

Less than a minute later, in the same flat, perfunctory tone, he announced the fifth setting was locked in; and hope flared in Danestar so suddenly it was like a shock of hot fright.

She glanced quickly at him. Staring down at the instrument he fingered with infinite two-handed deliberation, Wergard looked drugged, in a white-faced trance. She didn't dare address him, do anything that might break into that complete absorption.

But mentally she found herself screaming at him to hurry. There was so little time left. The last barrier in the northern complex had flared, gone dead, minutes before. The giant main body of the alien seemed quiescent then. There were indications of deep continuing disturbances in the scintillating signal swarms in the projector, and briefly Danestar had thought that the last tearing shock of force field energies could have left the great mass finally disorganized, crippled and stunned.

But then evidence grew that the component which had remained in the control station was, in fact, rejoining the main body. And its role became clear. As the two merged, the erratic disturbances in the major section dimmed, smoothed out. A suggestion of swift, multitudinous rhythms co-ordinating the whole gradually returned.

The Pit thing was the equivalent of an army of billions of individuals. And that entity had a directing in-

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telligence—centered in the section which had held itself out of action until the energy defenses of the Depot were neutralized. Now it had reappeared, unaffected by the damage the main body had suffered, to resume immediate control, restore order. Quantitatively, the composite monster was reduced, shrunken. But its efficiency remained unimpaired; and as far as she and Wergard were concerned, the loss in sheer mass made no difference.

And where was it now? She'd kept the panels of the viewscreen shifting about along the line of approach it should take between the northern complex and this building. She did not catch sight of it. But, of course, if it was in motion again, it could as easily be flowing towards them below ground level where the screen wouldn't show it—

Danestar paused, right hand on the screen mechansism.

Had there been the lightest, most momentary, betraying quiver in a section of the defense barrier indicators just then? The screen was turned to the area about the building; and only the gliding, swift ghost-shapes of the segments were visible in the streets outside.

But that meant nothing. She kept her eyes on the barrier panel. Seconds passed; then a brief quivering ran through the indicators and subsided.

The thing was here, beneath the building, barely beyond range of its force field.

Danestar drew the instrument valise quietly towards her, opened its dial lock and took out the ovoid alien device and a small gun lying in the valise beside it. She laid the device on the table, placed the gun's muzzle against it. A slight pull of her trigger finger would drive a shattering charge into the instrument. . .

Her eyes went back to the viewscreen. The swirling mass of light shapes out there abruptly had stopped moving.

She and Wergard had discussed this. The alien had traced the U-League's asteroid specimen from the Pit to Mezmiali, and to the Depot. While the instrument now missing from the specimen had been enclosed by the spyproof screens of Danestar's valise, the alien's senses evidently had not detected it. But it should register on them as soon as it *was removed again from the valise.*

One question had been then whether the alien would be aware of the device's importance to it. Danestar thought now that it was. The other question was whether it had learned enough from its contacts with humans to realize that, cornered and facing death, they might destroy such an instrument to keep it from an enemy.

If the alien knew that, it might, in the final situation, gain them a little more time.

She would not have been surprised if the barrier indicators had

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blazed red the instant after she opened the valise. And she would, in that moment, which certainly must be the last of her life and Wergard's, have pulled the gun's trigger.

But nothing happened immediately, except that the segments in the streets outside the building went motionless. That, of course, should have some significance. Danestar waited now as motionlessly. Perhaps half a minute passed. Then the rattling pickup signal of the shortcode transmitter on the table suddenly jarred the stillness of the room.

Some seconds later, three spaced words, stolen from living human voices, patched together by the alien's cunning, came from the transmitter:

"I . . . want . . . it . . ."

There was a pause. On Danestar's left, Wergard made a harsh, laughing sound. She watched the barrier panel. The indicators there remained quiet.

"I . . . want . . . it . . ." repeated the transmitter suddenly. It paused again.

"Six, Danestar!" Wergard's voice told her. He added something in a mutter, went silent.

"I . . . want—"

The transmitter cut off abruptly. The force field indicators flickered very slightly and then were still. But in the viewscreen there was renewed motion.

The segments in the street to the left of the building lifted like burning leaves caught by the breath of an approaching storm, swirled up together, streamed into and across the building beyond. In an instant, the street was empty of them. In the street on the right, ghostly fire-shapes also were moving off, more slowly, gliding away to the east, while the others began pouring out of building fronts and down through the air again to join the withdrawal. Some four hundred yards away, the swarm came to a stop, massing together. Seconds later, the paving about them showed the familiar purple glitter and the gleaming mass of the Pit creature lifted slowly into view from below, its minor emissaries merging into it and vanishing as it arose. It lay there quietly then, filling the width of the street.

The situation had been presented in a manner which could not be misunderstood. The alien mind wanted the instrument. It knew the humans in this building had it. It had communicated the fact to them, then drawn back from the building, drawn its segments with it.

The humans, it implied, were free to go now, leaving the instrument behind—

But, of course, that was not the real situation. There was no possible compromise. The insignificant-looking device against which Danestar's gun was held was the key to the Pit. To abandon it to the alien

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at this final moment was out of the question. And the act, in any case, would not have extended their lives by more than a few minutes.

So the muzzle of the gun remained where it was, and Danestar made no other move. Revealing they had here what the creature wanted had gained them a trifling addition in time. Until she heard Wergard tell her he had locked in the seventh and final setting on the diabolically tiny instrument with which he had been struggling for almost twenty minutes, she could do nothing else.

But Wergard stayed silent while the seconds slipped away. When some two minutes had passed, Danestar realized the giant fire shape was settling back beneath the surface of the street. Within seconds then it disappeared.

A leaden hopelessness settled on her at last. When they saw the thing again, it would be coming in for the final attack. And if it rose against the force fields from below the building, they would not see it then. She must remember to pull the trigger the instant the barrier indicators flashed their warning. Then it would be over.

She looked around at Wergard, saw he had placed the instrument on the table before him and was scowling down at it, lost in the black abstraction that somehow had enabled his fingers to do what normally must have been impossible to them. Only a few more minutes, Danestar thought, and he should have completed it. She parted her lips to warn him of what was about to happen, shook her head. Why disturb him now? There was nothing more Wergard could do either.

As she looked back at the viewscreen, the Pit creature began to rise through the street level a hundred yards away. It lifted smoothly, monstrously, a flowing mountain of purple brilliance, poured towards them.

Seconds left . . . her finger went taut on the trigger.

A bemused, slow voice seemed to say heavily, "My eyes keep blurring now. Want to check this, Danestar? I think I have the setting but—"

"No time!" She screamed it out, as the gun dropped to the table. She twisted awkwardly around on the chair, right hand reaching. "Let me have it!"

Then Wergard, shocked free of whatever trance had closed on him, was there, slapping the device into her hand, steadying her as she twisted back towards the detector and fitted it in. He swung away from her. Danestar locked the attachment down, glanced over her shoulder, saw him standing again at the other table, eyes fixed on her, hand lifted above the plunger of the power pack beside the carbine.

"Now!" she whispered.

Wergard couldn't possibly have heard it. But his palm came down

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in a hard slap on the plunger as the indicators of the entire eastern section of the barrier flared red.

Danestar was a girl who preferred subtle methods in her work when possible. She had designed the detector's interference attachment primarily to permit careful, unnoticeable manipulations of messages passing over some supposedly untappable communication line or other; and it worked very well.

On this occasion, however, with the peak thrust of the power pack surging into it, there was nothing subtle about its action. A storm of static howled through the Depot along the Pit creature's internal communication band. In reaction to it, the composite body quite literally shattered. The viewscreen filled with boiling geysers of purple light. Under the dull black dome of the main barrier, the rising mass expanded into a writhing, glowing cloud. Ripped by continuing torrents of static, it faded farther, dissipated into billions of flashing lines of light mindlessly seeking escape. In their billions, they poured upon the defense globe of the ancient fortress.

For three or four minutes, the great barrier drank them in greedily.

Then the U-League Depot stood quiet again. ■

THE ANALYTICAL LABORATORY

NOVEMBER 1965

PLACE	STORY	AUTHOR	POINTS
1.	Space Pioneer (Conclusion)	*Mack Reynolds*	1.84
2.	Down Styphon	*H. Beam Piper*	1.87
3.	Even Chance	*John Brunner*	2.84
4.	A Long Way To Go	*Robert Conquest*	3.30

THE EDITOR

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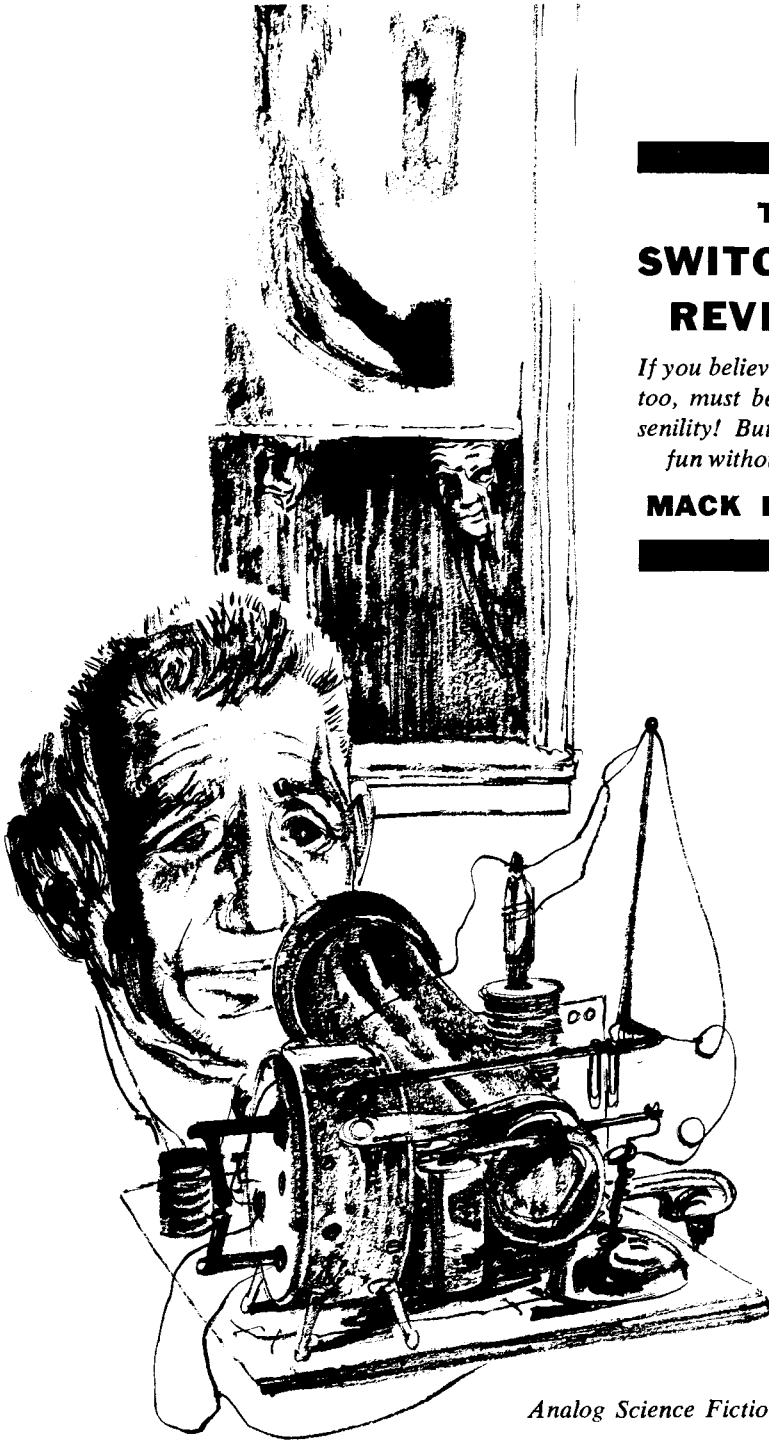

THE SWITCHEROO REVISITED

If you believe this story, you, too, must be suffering from senility! But you can have fun without believing it!

MACK REYNOLDS

John Schoenherr

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Lieutenant Alexander Sisakyan had his cab drop him at an old baroque palace on Kaluzhskaya Street. Somewhat to his surprise, there was no sign of a guard at the somber entry.

A youngish man with a somewhat puffish face, he seemed ill at ease in his uniform though it was obviously well tailored of the best textiles imported from the West. Sisakyan had no idea what this assignment would turn out to be and he suspected that his immediate superior, who had sent him here to the Academy of Sciences center, didn't either. Next to the Presidium of the CPSU and the Council of Ministers, the Academy was the most prestigious body in the Soviet Complex and not answerable even to the State police organization.

He shifted his shoulders uncomfortably beneath the military greatcoat he wore, as though unhappy about embarking upon this, and entered the building. For a moment, the interior set him back. The marble halls still contained statuary, paintings and other relics of the days when the palace had been the private home of some long forgotten aristocrat. Evidently, no one had ever got around to removing them.

There were several reception desks in the *entrada.* He marched up to the nearest, came to attention and said stiffly, "Lieutenant Sisakyan. On appointment to see Comrade Anatole Mendeleev."

"Academician Mendeleev," the girl reproved him gently.

He made a mental note. Evidently, in the Academy, scientific rank and title was considered of more importance than Party position. He wondered at the desirability of that and decided to mention it to his father.

The girl had evidently pressed some button or in other wise summoned a guide, since one materialized at his elbow.

The guide led the way.

Mendeleev was cordial enough, considering his lofty position as one of the less than two hundred scientists who had achieved to similar rank. He was a somewhat vague,

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slow-speaking man evidently in his late seventies, and showing his years.

He shook hands, dismissed the guide, gestured in the direction of a chair, took his own place behind his desk and stared at the lieutenant.

He said finally, "Lieutenant, what would you say was the single most important aspect of the never ending competition between Soviet science and that of the imperialist nations? What single factor is most important in our leadership in so many fields?"

The oldster, the KGB man decided, was not fishing for some statement of propagandistic rote. The lieutenant was puzzled.

"Don't bother to guess, Lieutenant Sisakyan. It is our system of abstracting."

"Abstracting?" Sisakyan said blankly.

"Definitely. Let me give you some background. Our two mechanisms were set up in 1953, the All-Union Institute of Scientific and Technical Information and the Institute of Scientific Information, both under the direction of the Academy with myself the present director, though admittedly of recent years I have allowed underlings to carry most of the burden. The first publishes a periodical of abstracts called *Express-Informatsia*, a weekly which goes to every school, laboratory and scientific institution in the Soviet Complex. The second publishes material which is equivalent in bulk every year to thirty-five volumes of the Encyclopedia Britannica and contains some four hundred thousand abstracts. Between them they take in eight thousand foreign periodicals from eighty countries. For example, of the some eighteen hundred scientific journals published in the United States, we subscribe to fourteen hundred. You see, our task is to make everything of value, or interest, on a scientific subject available in Russian within a matter of weeks of its first being published anywhere in the world.

"Without being chauvinistic, Lieutenant, I can say that there is nothing comparable in the West. American scientists have often found out about new developments in their fields by fellow Americans in our *Express-Informatsia.*" For a moment the elderly scientist seemed to lose his thread, but then he shook his head and went on. "It is obviously no small operation, Lieutenant. Why the cost of subscriptions to American magazines alone is more than a million dollars a year. To translate the material, we have developed various equipment either unknown to the West, or in its infancy there. Perhaps the most important of these is a translating machine which reads the foreign language it is set up to cover, and types out the material in Russian."

The KGB man was surprised. He had, of course, been educated to the fact that the Soviet Complex

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was far in advance of the imperialist world in science, but he had never heard of this aspect of the Academy.

Mendeleev, having given his background, got nearer to the point.

"You will possibly be astounded, Lieutenant, to hear that in America, at least, there are publications devoted to science that run not only articles on the latest in scientific and technical subjects, but works of fiction as well." He ran a slightly palsied hand back over his thinning gray hair, as though in puzzlement himself. "I am at a loss to understand why. Undoubtedly, our colleagues in the West operate under circumstances different from our own."

The lieutenant said stiffly, "Under the People's State, science is given full freedom so that all will profit by the discoveries made under the ultimate direction of Number One and the Party."

"Of course," the scientist said. "But we now come to the crux. The fact is that in some cases it is difficult in these particular magazines to determine where articles end and fiction commences."

The lieutenant looked at him, uncomprehending.

The other said hesitantly, "Do not misunderstand. We of this department are capable of separating fact from fiction. However, it would seem that the Americans allow them to overlap. Let me think of an example. Well, to go quite a way back, during the Hitler war when the Allies were developing the primitive nuclear fission weapons, all efforts were made to keep the project secret. To the horror of the Security authorities, one day one of these magazines ran a supposed story dealing with an atomic weapon, using technically correct information. Agents were immediately dispatched to the offending magazine's editor to demand who on the Manhattan Project had been talking. In bewilderment, he let them know that he had never heard of the Manhattan Project and that any information in his stories was known to anyone who read scientific journals. At the same time, other agents were questioning the author, who also pleaded innocence."

"They should have both been shot," the lieutenant said stiffly.

The scientist cleared his throat. "Perhaps. However, neither knew what in the world they were being questioned about until a few weeks later the attack on Hiroshima was announced. I assume you see my point."

He ran his slightly trembling hand back over his hair again in his gesture of puzzlement. "Do not think that these publications are to be ignored. They were read by such eminent late colleagues of ours as Einstein and Fermi. We know that Von Braun, during the war years while working on Hitler's rockets,

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had his subscription to one of them sent to him through neutral Sweden. Indeed, sometimes prominent American scientists will write the stories themselves, under pseudonyms, using as their themes their most recent hypotheses. Fred Hoyle, the astronomer, with his extrapolative not-quite-fact stories sometimes called nonfiction—science fiction—is one. And that cybernetics fellow, my mind seems a bit slow this morning, Norbert, was it? Weiner, or Wiener, or something."

He frowned his continued discomfort with his subject, shrugged his thin shoulders as though desirous of getting on with it. "The point is that recently one of our translating machines, abstracting one of the magazines in question, turned up a device evidently invented some years ago by a certain Tarkington Perkins. The invention has seemingly been suppressed. It was called a psychoreversamentatron, or, more simply, a Switcheroo."

The scientist cleared his throat. "The Americans have a strange habit of giving even the most complicated of their devices idiomatic names. For that matter, they give their hurricanes which ravage their east coast, girls' names. At any rate, the device, the switcheroo, is designed to switch one mind to another."

The other gaped at him. "You mean they have surpassed our own Pavlov Institute in Leningrad, in transplanting organs? They have actually succeeded in transplanting brains?"

"No, no. You misunderstand me, Lieutenant. If our abstract is correct, this Tarkington Perkins has bypassed surgery. He does not transplant the brain, but interchanges minds from one body to another."

Lieutenant Sisakyan was far, far out of his depth, and looked so.

Anatole Mendeleev was also out of his depth and was inwardly conscious of the fact, and irritated by it.

He said, a trifle sharply, "The brain is a physical thing, Lieutenant, which can be weighed, measured and so forth. The mind, like the so-called soul, or psyche, is the totality of conscious and unconscious activities, the intellect or understanding, and is considerably more difficult to deal with."

The lieutenant was still blank.

Mendeleev shifted his aged body in his chair. "At any rate, it would seem that Perkins' device was designed to switch minds from one body to another, even at a considerable distance."

"Impossible!"

The scientist looked at him wearily. This young man was not as sharp as he might have been. "It is a word we have come to use less and less in the Academy, Lieutenant."

"But what do you need my services for? I—"

"Lieutenant, we can find no rec-

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ord of this Tarkington Perkins. However, it is well known that in America scientific breakthroughs are sometimes still made by individuals, often without formal scientific education, and often working in their own amateur shops and laboratories in their garages, attics or cellars. Here in the Soviet Complex it would be impossible, of course. At any rate, all we can discover of this Tarkington Perkins in our abstract is that he works in his home in Springfield, where he lives with his wife, Martha. He has evidently devoted time to various projects which would seem somewhat impractical. A cheap substitute for water, for one, and an attempt to produce a beverage which would eliminate the aftereffects of alcohol."

"You mean he developed a beverage which led to, uh, euphoria without a following hangover, as the Americans call it?"

"He was only partially successful." The academician looked down at the report before him. "He called it cilohocla. Evidently, the effect was a feeling of depression, upon imbibing, which grew increasingly worse the more that was taken."

The lieutenant was gawking again. "Then why drink it?"

"Because in the morning you woke up feeling wonderful, absolutely exuberant; in short, all the effects of inebriation."

Sisakyan shook his head, as though in an effort to keep himself from thinking about what he had just heard. He said, "To get back to this Perkins. You say that he lives in Springfield. If my studies of American geography serve me, there is more than one."

"There are evidently at least eleven," the scientist said unhappily. "That will be part of your task. Finding which one he lives in."

"My *task—!*"

"Certainly," the other rapped impatiently. "Do you fail to see the possibilities here, Sisakyan? In an imperialist economy such a device might be suppressed, as they evidently suppress so many inventions in their planned obsolescence and other insanities. Why, given a switcheroo, a wealthy man need never die. As he began to grow older, he would simply switch his mind into a new, vigorous body which he could purchase from some younger man who was poverty-stricken and would sell his youth in exchange for a few years of affluence in an older body."

The lieutenant was staring again. "And how would we use it?"

The aged scientist cleared his throat unctuously. "My dear Lieutenant, the needs of the People's State come first. The switcheroo could not be misused. Competent persons in authority would decide who could use it. Perhaps a great scientist, who was beginning to feel the infirmities of years, or a great leader, such as Number One would be permitted."

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"Then my assignment is to go to America, find this Perkins and secure the plans for the, uh, switcheroo?"

The other nodded. "Obviously, you must act with the greatest circumspection. Word must not get out. Evidently, the development of the device has been lost by the West, as they have lost so many devices of their unorthodox and intuitive scientists."

"There's no copy of the device now in existence?"

"So far as we know. The translating machine informs us that the only working model ever made was destroyed by Perkins after some confused developments with the governor of the state."

The lieutenant said unhappily, "Do we have any idea of what it looked like? If a new one has been made operative, would it be so large that it would be impractical for me to, uh, liberate it from the Imperialists?"

The scientist consulted his notes once again. "It would seem that the working model was composed of materials improvised by Perkins. The description here mentions an alarm clock, a flashlight and pieces of an erector set. Handily transportable, I would say."

"Erector set?"

"Evidently some highly technical equipment, unknown to us. Possibly classified, though in that case it would seem unlikely this Tarkington Perkins would have access."

Academician Mendeleev came to his feet, preliminary to dismissal of the other.

"Lieutenant, frankly I doubt that the switcheroo exists; the very possibility is mind shaking. However, we cannot afford to take chances. If it exists, even in only partially successful form, our technicians must secure it. Perhaps through their efforts it can be perfected and devoted to the use of the People's State. Your mission is, needless to say, top priority, top secret. You will report only to me. My assistants will take care of details pertaining to your trip to America, and so forth."

Jeff Pond closed the door behind him, shutting off the clatter of typers, the noise of office efficiency—and inefficiency.

Eve Ostrander looked up from her work and said, "Hi, Jeff."

He grinned at her and said, "Hi," then looked to the Chief.

His superior mumbled something and tossed a sheaf of memos to his desk top. He said, "Hello, Jefferson. I assume you have made some progress?"

Without invitation, Jeff sank into a chair across from the heavy-set department head. Jeff Pond was a small, alert, quick-moving man in his early thirties. He said, "Some. His name is evidently Alexander Sisakyan."

"What do we have on him?"

"Precious little. Possibly he's related to Ivan Petrovich Sisakyan,

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deputy chairman of the USSR Council of Ministers. Alex evidently was educated in Kharkov, not exactly distinguishing himself. Afterwards, he attended the Committee of State Security academy in Kazan and graduated as a lieutenant."

"He's only a lieutenant now?"

"So far as we know, this is his first assignment."

"No details on what he specialized in at Kazan?"

Jeff shifted in his chair. "Evidently on American and British affairs, English language and so forth. Which might be the reason he was given this assignment."

"Well, here's the jackpot question," the Chief said. "What is he after?"

Jeff Pond shook his head. "Damned if we can find out. He evidently crossed the border at Matamoros into Brownsville, passing himself off as a British tourist. If we hadn't received word from the boys in Stockholm, we probably would have never spotted him."

"And then?"

"He headed north to Springfield, Colorado—"

"Never heard of it. What's there?"

"Nothing in particular. It's a small town in the eastern part of the state. He stayed a couple of days. We had three operatives on him but the only thing they could find out was that he was looking for somebody named Tarkington Perkins. There was no such person in town, and, so far as we've been able to check thus far, there never has been."

"Tarkington Perkins?"

"We're still checking. Thus far we haven't found a single bearer of that name in the country."

"Put more men on it," the Chief growled heavily. "Maybe we have got the name wrong, or perhaps Sisakyan has. Possibly it is Tarlington Perkins, or Tarkington Parsons, or something similar."

"We've already been checking that out, sir."

Eve Ostrander looked up from her paperwork and frowned. "Tarkington Perkins," she said. "It seems to me that I read a story with a character named—"

The Chief said wearily, "Please, Miss Ostrander. You are my confidential aide because your secretarial qualifications are of the best, not to speak of the fact that you have near total recall. However, though I have often wondered at your taste in literature, I am not interested in discussing it."

Eve flushed. "Yes, sir."

The department head looked back to his favorite field man. "Go on."

"After two days he took off and traveled up to Springfield, Oregon. Same deal. Stayed a couple of days asking around for Tarkington Perkins. He didn't find him, and neither did we. No record of such a person."

"Anything else? Does he do anything besides look for this Perkins?"

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Jeff Pond shook his head. "Right now, he's heading east by train with a ticket for Springfield, Illinois. Oh, there was one thing. He spends part of his time going through the files of the local newspapers. And once, rather guardedly, he asked the librarian in Oregon if she had ever heard of," Jeff hesitated, "a switcheroo."

"A switcheroo!" Eve blurted.

The Chief glared at her. "*Please*, Miss Ostrander." He looked back at Jeff. "What is a switcheroo?"

"We might have got the wrong word, of course. I always thought a switcheroo was sort of a Hollywood term. You took an old hat theme and reversed it, sort of a man bites dog deal. That's putting on the switcheroo."

The Chief mumbled disgust.

Eve came to her feet and said defiantly, "Tarkington Perkins invented the switcheroo. He was one of these absent-minded inventor types with a big wife named Martha, and he lived in Springfield and switched his mind into the body of the governor of the state, and vice versa."

The men were both beyond words for a long moment.

"Vice versa?" Jeff said meaninglessly.

"His mind went into the governor's body and the governor's mind went into Tark Perkins."

The Chief was glaring at her again.

She glared back.

"Have you gone completely around the corner, Miss Ostrander?"

"No, sir. It's a story. I remember it very clearly."

Jeff said, "Wait a minute, Chief. Tarkington Perkins, a switcheroo, Springfield. If Eve's right, that's too much for coincidence."

The department head mumbled bitterly. Finally he said, "Miss Ostrander, get me a copy of this confounded story, instantly."

"I . . . I think I threw it away. It was some time ago."

"If it was in a magazine," Jeff said, "they undoubtedly copyrighted it. There'll be a copy in the files of the Library of Congress. Do you remember the title of the publication and the approximate date?"

She was an enormous woman, at least two hundred and fifty pounds and about as friendly looking as a mother bear with four sick cubs and a thorn in her foot.

"*Wellllll*?" she drew out ominously.

Alexander Sisakyan tried to look placatingly. "I . . . uh, excuse me, Madam. Is this the residence of the famed inventor, Tarkington Perkins?"

"Famed inventor! That little wretch? What d'ya want with him?"

"I . . . uh, excuse me. May I introduce myself? I am Rupert Croft-Smythe from, uh, Fleet Street, uh, London. It was my hope to interview Mr. Perkins."

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"Interview that little worm? Why?" However, she turned her head and screamed over her shoulder. "Tark! There's some fool wants to see you!"

She turned and waddled off toward the back of the house, as though in a rage.

The lieutenant shuddered. He didn't quite know what to do next. Was he expected to enter, or to remain out here on the wooden porch? The house was an unprepossessing frame building in one of the poorer neighborhoods of Springfield, Massachusetts. Whatever the abilities of Tarkington Perkins in the sciences, he most certainly was not overly successful financially speaking. Alexander Sisakyan could but recall with a certain satisfaction that in the People's State inventors were properly appreciated and were among the highest paid comrade citizens in the Soviet Complex, along with artists, entertainment stars and, of course, high-ranking Party members such as his father.

He cautiously entered and looked about.

To his left, a stairway descended into what was obviously a cellar. The lady wrestler, who was evidently Mrs. Perkins, had seemingly shouted down to her husband. He must be below.

The lieutenant started hesitantly down.

He gained courage upon emerging into the clutter of what was obviously the amateur workshop of a less than tidy experimenter. He gained more courage when he saw the occupant.

"Uh, Mr. Perkins?" he said.

The other raised his head and peered at the newcomer through bifocal glasses, one lens of which was slightly cracked. He was not a large man, and gave the impression of being smaller still, shrunken by the fate destiny had wished upon him. There was apology continually in the air.

"Hello," Jeff Pond said. "That's right. But just call me Tark, everybody does."

Alex Sisakyan said, "My name is Croft-Smythe, sir. I represent Commonwealth Press. My editor—"

"You haven't got a quarter, or better still, a fifty-cent piece, have you?" the self-announced Tarkington Perkins said plaintively. "I need a piece of silver."

The KGB agent paused for a moment, taken aback, then searched his right pants pocket, coming up with a small handful of American silver. He extended it.

The other peered and fished around. "A nice new one, would be best. Less contamination." He found a fifty-cent piece. "This should do." He turned back to the crucible-like metal box he was evidently working upon, and picked up a soldering iron.

"What can I do for you, Mr.—"

"Croft-Smythe," Alex said. "Rupert Croft-Smythe. My editor mentioned the fact that since I was to

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be in this part of America, I should look you up for an interview."

Jeff Pond *cum* Tarkington Perkins muttered, even as he worked, "Interview me? I can't imagine why."

The lieutenant pretended to look at some notes. "He seemed to think that your device, the, uh, psycho-reversamentatron, was worthy of a story. Of course, I never really thought any such—"

Tark Perkins was distressed. "The switcheroo? Good heavens, where did you ever hear about that? Oh, my goodness, you mustn't write anything about the switcheroo. Oh, no, indeed. Here, now—"

He turned back to his current project, put the silver coin in the center of the iron box, firmly bolted down the lid and threw a switch. "I do hope it works this time."

Alex was staring at him in disbelief. He looked at the crucible-like box, then back to the jittery inventor again. He said, "You mean, you really did work on a device that would—"

"Just a minute, if you don't mind," Tark Perkins said apologetically. He opened the lid and stared down at the silver fifty-cent piece. Only it wasn't a silver fifty-cent piece. It gleamed yellow, a fine, beautiful, lustrous yellow.

It was now a gold fifty-cent piece. Perkins lifted it out, jubilant. "I've done it! Good heavens!"

Lieutenant Alexander Sisakyan, his eyes bugging, took the coin from the other's hand. Its weight told the story. He stared absolute disbelief.

"The Philosopher's Stone, at long last!" Perkins crowed. "Oh, Bert would have been so pleased."

"Bert?" the Russian said blankly, unable to take his eyes from the coin.

"Yes, yes. Old friend of mine. Used to teach down in Princeton, or somewhere. Absent-minded type. His last name escapes me, but I'm sure you'd know it. Kind of fuzzy hair. Played a violin. He gave me the germ of the idea."

The lieutenant's eyes went from the coin to his host. "Albert?" he said. He hacked his throat clear. "He didn't have some, uh, far out ideas on relativity, did he?"

"Relativity? Oh yes. That was Bert. Fine old fellow, though rather eccentric." Tarkington Perkins turned his back again and began fiddling with his device.

The lieutenant had closed his eyes in momentary pain, but opened them again to stare at the silver-turned-gold coin again.

He blurted, "What are you going to do with it?"

"With what?"

"With this invention of yours?"

Tarkington Perkins put down his screwdriver in despair. He took the coin back and returned it to the box. He screwed down the lid, made some adjustments with two dials set into the side and threw the switch again.

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"Nothing," he said. "Bert warned me."

"Warned you what?" Alex was getting the most confused feeling that he had come into this conversation several sentences too late.

"Oh, that if I was ever really successful, I'd have to suppress it." He sighed unhappily. "Just as I did the switcheroo."

"Wait a minute," Alex said, with a feeling of being harassed. "Why do you have to suppress a machine that will turn silver into gold?"

Tark Perkins seemed to get sidetracked. He looked off into a far corner of the dark room, unseeingly. "I don't see why we couldn't use lead," he muttered.

The lieutenant closed his eyes again. Admittedly, he didn't know much about science. He and his fellows at the university who were the sons of party hierarchy, had had their instructors buffaloed. In fact, it had gone so far at one time that there was a warning editorial in *Pravda* hinting at some discipline if certain prominent young comrades didn't stop acting like *mitrofanushka* and *stilyagi*. However, his science was good enough—or he thought it was—that he knew you didn't transform silver, not to speak of lead, into gold by the throw of a switch in a dark, junk cluttered cellar.

Tark, muttering absently still, opened the lid and brought forth the other's coin and handed it back to him. Alex bug-eyed still once again. Once more, it was silver. He shook his head for clarity. This simply *wasn't* happening.

Alex said, his voice higher than was its wont, "Why do you have to suppress it?"

Perkins said plaintively, "According to Bert, it would collapse the monetary system of the world. Why, transmutation of metals would mean gold could no longer be used as a medium of exchange. It would no longer be worth any more than any other metal. Oh goodness, no. I promised him that if I were able to work his theories out and actually succeeded, that I'd never reveal the fact."

The lieutenant said, desperately, "Well, back to the, uh, switcheroo, Mr. Perkins. You mean to tell me that it actually worked?"

"Oh, yes. Terrible. Good heavens." Surreptitiously, Jeff Pond stepped on a button.

"Do you still have—"

A voice shouted down the stairway. "Tark! You, Tark Perkins! Get up here and get to these dishes. I won't have you men lazing around the house, doing nothing but gabbing!"

Tark looked at his visitor apologetically. "I'm afraid I'll have to go," he said. "I'm sorry about the interview. Thanks for the loan of the coin."

Alex said hoarsely, "Wait a minute!"

"I'm afraid I can't." Jeff looked up at the ceiling meaningfully.

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"Tark!" the voice from above shouted.

"Oh, good heavens," he said, heading for the stairs.

Alex said hurriedly, "It's all right. I'm to be in town for a while. I'll see you tomorrow. Or possibly tonight. Could you meet me at the bar in the Eastern Hotel at—"

"Oh, no. I'm afraid not. Martha never lets me out at night. She doesn't approve of alcoholic beverages."

They were at the stairway.

"Well, look," Alex said urgently. "I'll come back tomorrow."

Tark hesitated and began to ascend the stairs. "Well," he whispered, "If you have to, maybe you'd better come about two o'clock. That's when Martha plays bridge with the girls. She won't be home."

As soon as the Russian was gone, Jeff Pond spun on Martha.

"Polly," he rapped. "Get me Eve Ostrander, immediately!"

"Yes, sir," she said. She moved considerably faster now than the waddle she had utilized before the KGB man. She hurried into a back room.

For a moment, Jeff Pond stood looking out a window, his face working in thought.

Polly called, "I have Miss Ostrander on the screen, Mr. Pond."

"Right."

He went into the back and sat before the telle-phone. Part of Eve Ostrander's desk and all of her face were in the screen.

She said, "Hi, Jeff. How is it going?"

"Fine, I think. I'm going to want to talk to the Chief, but first, have you got anything more on this young jerk?"

She looked down at the desk, obviously at some reports. "Yes. Your hunch on the name was correct. He's Alexander Sisakyan, the son of Ivan Petrovich Sisakyan, who is currently one of the top ten. Usually thought of as third from the top."

Jeff hissed through his teeth. "Then what in the world is he doing on this screwball assignment?"

Eve said, "We've got something on that, too. Just came in on the scrambler from Moscow. His immediate superiors, in the KGB, under orders, were evidently looking for some easy assignments where he could quickly distinguish himself, so that they could decently bounce him upstairs to some important desk job."

Jeff Pond grunted contempt. "Evidently nepotism isn't any more unknown in the East than it is in the West. But I can't see them risking his precious neck on an American job."

"We have something on that, too. It seems that Anatole Mendeleev, one of the big wigs of the Academy of Science sent in a request to the KGB for an agent to be used on a top-secret matter. The Academy, you know, isn't lacking in prestige."

"So?"

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"I suppose young Sisakyan's superiors figured it would be a safe job but still one for which they could hang a few medals around the new agent's neck. At any rate, they sent him, not knowing the nature of the assignment."

"You mean a man with Anatole Mendeleev's background is behind this farce?" Jeff Pond was unbelieving. "Why he's a Nobel Prize winner. He's the best man they have in hydrobiology and head of their Institute of Scientific Information to boot."

Eve said with a mouth twist, "And he's also about eighty years old. That rank of academician they have has its angles. You're in for life and it's a close-knit union among the scientific elite. They take care of each other."

"You mean—"

"Just a minute, something else is coming in on the scrambler. I think it's more on Mendeleev. Yes, just a minute, Jeff. Here it is. Evidently, he's recently secretly been working on an Elixir of Life. Trying to further develop those far out theories of Dr. Anna Aslan and her vitamin H3, down in Rumania."

"Elixir of Life! The old boy must be as senile as a coot! Well, put me through to the Chief, will you, Eve?"

"Will do."

Eve faded. In a few moments, the Chief's considerably less attractive face faded in.

"Well, Jefferson," he scowled, "how did your charade come off? I sometimes wonder about these brain storms of yours."

"We roped him in like a calf, sir. Operative Polly MacGivern took on the role of Martha, the fictional wife of this Perkins. I played Tark. The New York department boys set up the house and the phony lab. When he entered, he was skeptical about this switcheroo thing, highly skeptical, as anybody this side of a complete moron would be. However, I refused even to discuss it with him. Instead, I was fiddling around with a gobbledygook device the boys down in the Department of Dirty Tricks had whomped up for me. Based on an old carnival sideshow gimmick, it supposedly changes silver into gold. The old substitution bit, of course."

The Chief mumbled bitterly.

Jeff Pond went on. "He swallowed it. He even swallowed my act, though this Tarkington Perkins character would ordinarily need an Alfred Lunt to put over plausibly. I tell you, sir, this kid is a real square."

His superior thought about it for a moment. "What do you think we can get?"

Jeff shrugged. "Even as it stands now, the fact that we can pick him up and charge him with espionage is something. They'd lose a lot of face if we arrested and brought to trial the son of Ivan Sisakyan."

The Chief said unhappily, "I do not know if present policy calls for

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that sort of thing, Jefferson. The Cold War is not so chilly these days, you know. And nobody wants to stir things up that will call for any hot-line telephone calls, or pushing red buttons."

"No, sir." Jeff Pond paused. "But it seems to be a waste of one devil of an opportunity. This kid must know plenty. Just sitting around the house with his old man, rubbing elbows with Number One and all the rest."

His superior thought about it some more. He didn't really like this. It was too off-beat. There were too many fantastic angles. He said finally, "You have any ideas, Jefferson?"

"Well, yes, sir. How about—"

"Oh, it's you," Tarkington Perkins said, peering through his bifocals. "The newspaper fellow." He opened the door wider.

"Yes. Uh, Mrs. Perkins—?"

Tark said apologetically. "She's off playing cards. You can come in if you want."

Followed by the Russian, he led the way down the steps into the cellar. He went over to what would appear to be a bar stool which stood before his cluttered work table, and mounted it. Somehow, he didn't seem quite so pathetic a specimen, there in his own domain.

Alex said, "You know, Mr. Perkins, I got to thinking about your transmutation device last night. What you said about suppressing it. You know, there might be an answer. A method whereby you could profit by it."

"Oh, no. Goodness gracious. Bert made it quite clear. All that gold in Fort Knox would be quite worthless if suddenly it were revealed that lead could be transmuted."

"Silver, you mean," Alex said, the harassed feeling beginning to overwhelm him once more.

"I worked on it after Martha went to bed," Tark explained. "It works with lead, too. Slight different adjustment, is all."

Alex Sisakyan said, "Well, this is what I had in mind. It's true your invention might disrupt the *American* economy, but it would have only a beneficial effect on that of the Soviet Complex."

Tark Perkins was taken aback. "Oh, good heavens. Why should that be?"

"Well, it's quite obvious, really. Their socioeconomic system is different. Gold isn't important. Used for filling teeth, that sort of thing."

Tark frowned in attempted memory. "Russia. Oh, yes. This Lenin type. Seems to me he has some rather extreme ideas."

"Well, actually, old chap, that was always exaggerated, you know. And, besides, he's been dead for years."

"Oh? I hadn't heard. I seldom read the papers. Martha says they're a waste of time. Although, come to think of it, on the radio one night when Martha wasn't listening to the

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soap operas, there was something about a fellow named Uncle Joe."

"Uncle Joe? Oh. Uncle Joe, as you Americans called him during the war."

"War? What war?"

Alex looked at him for a very long, very unbelieving moment. Finally, "Uh, there was sort of a war some years ago. Very nasty go, as we British say. However, Uncle Joe is no longer with us either. Time marches on, you know. At any rate, I can't think of any reason why you shouldn't sell your device to the Soviet Complex. It should net you a very comfortable amount." He looked about the cellar and sought for a clincher. "You could move to a much more satisfactory house."

Tark shook his head sadly. "Good heavens, no. Martha would never leave here. Her mother lives right next door and her sister down the street. Martha's mother is like Martha, only more so."

For the moment, the KGB agent gave up that approach. He didn't know how long it might be before that Stalin tank Tark Perkins called a wife would return. He rather frantically wanted to ask the vague inventor what other devices he might have knocking around. All that Academician Anatole Mendeleev had told him about intuitive American scientists without formal scientific background, inventing things in cellars and garages came back to him. Much of what he had been taught at the university and police school about the superiority of Soviet science over that of the West, was crumbling. He had the feeling that hanging onto reality at all was becoming increasingly difficult.

He said, "What I really wanted to interview you about, Mr. Perkins, was your earlier invention, the, uh, psychoreversamentatron."

"Oh, yes," Tark said. "Well, I promised the governor—"

Alex said unctuously, "But, of course, my article would appear only in the British press."

"Oh, is that so?" Tark frowned. He thought about it. Finally, "You know, I've only been interviewed once before. It is rather exciting. Makes you feel a bit important. Do you know how to spell my name correctly?" This last came out wistfully.

"Of course. T-A-R-K-I-N-G-T-O-N P-E-R-K-I-N-S."

Tark sighed. "Most people just call me Tark. Actually, I hate to be called Tark." He came to a sudden decision. "As a matter of fact, after Martha went to bed last night, I got to thinking about you, and I rummaged about in some of my old things. And I found it."

Alex looked at him. "You found what?"

"The switcheroo."

"But I understood it was destroyed. That at best you'd have only the plans."

"Oh, no. I never work from plans. It's banged up a bit, but I

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fixed it. I simply hate to have one of my things broken up. Just a minute, I'll show you."

He opened a drawer in the bench and brought forth the most fantastic looking jury-rigged gadget the Russian had ever seen. It obviously used the casings of both a flashlight and an alarm clock to house the mechanism. It also had switches, triggers and wires running in every which way.

Tark Perkins said vaguely, "Possibly I would have to put fresh batteries in it."

Alex Sisakyan, his eyes bugging, his voice hoarse, whispered, "How does it work?"

"Oh, it's quite simple. All the bugs are out of it, you know." His voice was wistful again. "I used it once. Just once." He sighed deeply. "It was amazing, for a while. But things became rather confused and I . . . well, as I told you, I had to suppress it. The governor, among others, was quite angry. I don't think he liked Martha, for one thing. Although I liked *his* wife well enough."

Alex Sisakyan closed his eyes. He didn't want to think about it.

But he had to think about it. He simply had to unscramble his mind.

He said, "You're sure it's in working order?"

"Oh, positive. All you do is stare into the lens, concentrate on the person you wish to trade minds with and push that switch. Distance makes no difference."

Lieutenant Alexander Sisakyan moved fast. His left hand held the switcheroo. His right hand blurred out, chopping into the neck of his surprised companion. Tarkington Perkins crumbled to the floor.

The Russian agent darted to the work bench, tried to lift the heavy iron box which was the metal transmuter. As he suspected, it was too heavy. He spun and was up the stairs, out the front door, speeding toward the rented car at the curb.

When he was gone, Polly MacGivern and two other operatives rushed into the cellar room. To their relief, Jeff Pond sat up, rubbing his neck ruefully.

"Man, did he clobber me! Who've you got on him?" He began to scramble to his feet.

"Tom Beckner and Hammy."

"They're O.K. Polly, get me the Chief, soonest. Our friend won't go far. He's not going to leave this gold machine behind. Hell, neither would I."

On the screen the Chief was more than doubtful. His ace field man had never been quite *this* impetuous before.

"How do you know where he'll go?" he demanded.

"He'll go back to the hotel. Back to where whatever spy equipment he's carrying is. He won't leave Springfield. He's got to get that gold machine. It's too heavy for him to carry out by himself, so he needs help. Can you imagine how his

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brain's working? If he could turn over a transmutation device to the Russkies, they'd work it night and day, turning out enough gold to buy everything that wasn't nailed down in the West."

"All right, all right. What are we going to get out of all this?"

"It's all according to what he tries to do, Chief. He's on the run now, but what we want to know is whom he'll contact. What he'll do. We've got that hotel he's staying in sewed up like a strait jacket. Every clerk, maid and bellhop is an operative. We've got on hand every gismo our Department of Dirty Tricks ever dreamed up. O.K. Admittedly, we might not get anything out of this. But remember, he's Number Three's son. Before we're through, we might stumble onto the whole Soviet espionage machinery in North America. He's going to contact somebody, somebody big, and that fast."

"Go ahead," the Chief mumbled unhappily.

He banged the door behind him. Stared wildly around the hotel room. Not that there was anything to stare at. So far as he could see, nothing had been changed since he had been here an hour or so ago.

The switcheroo. He had the switcheroo.

He had to think fast.

He wasn't overly worried about Tark Perkins. Even if the sad, vague inventor survived the judo blow Alex had given him, he doubted if the jittering, ineffective henpecked man would ever get around to complaining to the police. Certainly not in time to thwart the rapidly forming plans of Lieutenant Alexander Sisakyan.

He stood straight in the center of the floor. Stared into the lens of the gadget, which he held before him with both hands. He concentrated, took a deep breath, flicked the switch.

First a dazzling light glowed. What seemed a foglike mist issued forth from the device and Alex slowly crumbled to the floor.

Jeff Pond and half a dozen others came in through doors and windows.

Jeff bent over him. The other was breathing deeply.

"Doc! The hypnotic!" Jeff rapped.

One of his companions knelt and jammed a hypodermic in the unconscious man's arm. "It'll take only a minute," he said.

When the time had elapsed, Jeff said, in Russian, "Alex, Alex. Who were you thinking about when you pressed the switch? Who were you thinking about, Alex?"

The Russian's lips moved.

Jeff's voice became commanding. "Who were you concentrating upon, Lieutenant Sisakyan?"

"The President of the United States of the Americas."

The Chief said, "Are you completely around the corner?"

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Jeff said urgently, "I checked it all, sir. The President's on that fishing trip up in Michigan. We could clear it with Mike and his boys. Why not? The worse that could happen would be that the whole thing would blow up. But then we'd turn this young Sisakyan back over to the Soviet Embassy, with a stiff note, but we'd also leak the story. We'll have it all taped, and even have cameras on him every moment. The works. Here's the son of Number Three, being shown up as one of the biggest clowns of all time."

The Chief mumbled sourly. "And what do you figure is the best that could happen?"

"He'll do something that will give us a real lead. He'll be absolutely confused and will contact somebody that ordinarily he wouldn't. It's a chance, sir, but a chance we can't afford to miss."

His superior rumbled ominously, "If anything went wrong on this, heads would roll, Jefferson. And I suspect yours would be one of the first."

"Yes, sir," Jeff said hurriedly. "But I'm sure willing to take the chance. We've never had a potential like this since I've been in this cloak and dagger department."

"And, frankly, I hope we never will again," the Chief mumbled.

When Alex gained consciousness, he shook his head in disbelief.

He had never believed, actually. Not really. Not since he had first heard of the fantastic gadget in the office of one of the head academicians of the Academy of Science. Not even when, at long last, he had traced Tarkington Perkins—a man he hadn't really believed existed. Not even when, finally, the gadget was put into his hands. Put into his hands by a man who had proved himself to be the greatest intuitive scientist—as Mendeleev called them —possibly ever born.

He had never believed.

But now he believed.

He was sitting at a large desk, in a large beautifully furnished office. Outside the windows he recognized a city that he had seen before only in illustrations and films.

For that matter, though Jeff Pond hadn't known it, Alex Sisakyan wasn't at all unacquainted with this room. In his studies at the KGB school in Kazan, he had seen documentary films of the office of the President of the United States of the Americas—emphasizing various features of the room in which the single most powerful man in the world worked.

He knew where he was. There was little doubt in his mind at all. And he knew whose chair it was that he occupied.

Even as his mind reeled with the ramifications of it all, he *knew*.

His eyes darted around the room. There was no mirror. He looked down at his clothing. He had never seen the suit nor the shirt he wore

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before, but they were nattily tailored. He didn't seem to feel any great difference, physically, although he was a bit groggy.

A young man entered from a door to the left and brought a sheaf of papers toward him.

"Good morning, Mr. President," the young man said. "The reports from Mr. Davidsen, in London."

Alex cleared his throat. "Oh, yes, of course. Uh, just a moment."

"Yes, sir?" The newcomer had been about to turn and leave, after depositing the papers on the desk.

"See that I am not disturbed for, uh, the next hour."

"But, Mr.—"

Alex scowled.

"Yes, sir."

The young man left.

Alex Sisakyan moistened his lips desperately. His eyes darted about the room again. He had to think fast, he knew. He had to think fast.

Inspiration hit him like a bolt.

There was a red phone, along with a host of other phones which were all black. The red phone. It had been brought to the attention of the cadets in the academy at Kazan when they had watched the documentary.

The red phone. He reached out a hand for it.

Number One stared when the bell tinkled its special tinkle. He stared and for a moment paled. But Number One had not reached his position as master of the Kremlin, and of all the Russias, all the satellites, without having met crisis, and crisis again.

He reached out and took the phone up.

He held it to his ear, and slowly his heavy face went gray lard.

He spoke. Listened. Spoke again, hysteria coming to his voice.

Finally he banged the instrument down and shouted, "Anastas! Anastas!"

The aged Mikoyan came hurrying in, his sharp black eyes glittering, as always, his white teeth flashing characteristically.

Number One shrilled. "The helicopter! Order it out immediately. We've got to get out of here! To the airport and a plane for the bunkers in the Urals!"

"What's the matter!"

"The matter! I've just had the President on the hot line. He's cracked under the pressure. He is, as the Americans say, as nutty as a fruitcake. He says he's Alexander Sisakyan and that he's taken over the White House. Says he has a switcheroo and a gold machine, and what should he do with them. Get the helicopter! He'll be pressing that red button any minute! We'll have to beat him to it!"

And that, children, is how World War III began. ■

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TWIN-PLANET PROBE

LEE CORREY

Even with excellent, high-resolution photographs of another planet— one could make some gross errors of evaluation!

Figure 1: The first photograph made from Argus I showing the limb of Terra and indicating that the hydrogen oxide clouds remain very near or on the terrestrial surface. Note the random distribution of the cloud formations.

Photographs from U. S. Naval Ordnance

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INTRODUCTION

The possibility of the existence of life on other planets has long intrigued Martian scientists. In studying the other nine planets of the Solar System, astronomers amassed a great deal of information about these bodies from their telescopic observations. Inevitably, the question arose: Is Mars the only abode of life in the Solar System? Are we unique on our small, cratered planet? What kind of life, if any, could exist on the other planets? This has been the prime motivation behind planetary astronomy on Mars and for the large expenditure of labor and materials required to send instrumented probes on interplanetary missions. The first of these probes, *Argus I*, returned a plethora of new information from the twin planets, Terra and Luna, which has greatly altered our view of the universe and our expectations of finding life as we know it on the planet Terra.

BACKGROUND

Most of the planets of the Solar System appear to be quite inhospitable to life. The Outer Planets possess hydrocarbon atmospheres of such high density and receive so little solar radiation that they would not permit the existence of life as we know it. Of the Inner Planets, less is known because of the observational difficulties associated with their positions in orbit closer to the Sun. Their night sides are, therefore, presented to us during oppositions. Careful studies have shown that Mercury swings in its orbit well inside the solar atmosphere, making it very difficult to observe; its surface temperatures must be far too high to permit life. Venus, although somewhat cooler, seems to have a very dense atmosphere so opaque that our instruments have never been able to penetrate it; being totally un-Martian in character, Venus is not considered as a planet with a high probability of supporting life.

The most promising target in the Solar System is the twin planet Terra-Luna.

Strangely, this is the only twin-planet system among the solar worlds.

The smaller of the pair, Luna, is

Figure 2: Photograph No. 2 from Argus I camera. The strange patterns of the hydrogen oxide clouds are now evident. Also, the surface may be seen for the first time. There is absolutely no evidence of any cratering on the surface. This photograph looks southwest over North America and shows one of the yellow areas previously thought to be a plateau. Note the absence of high mountains.

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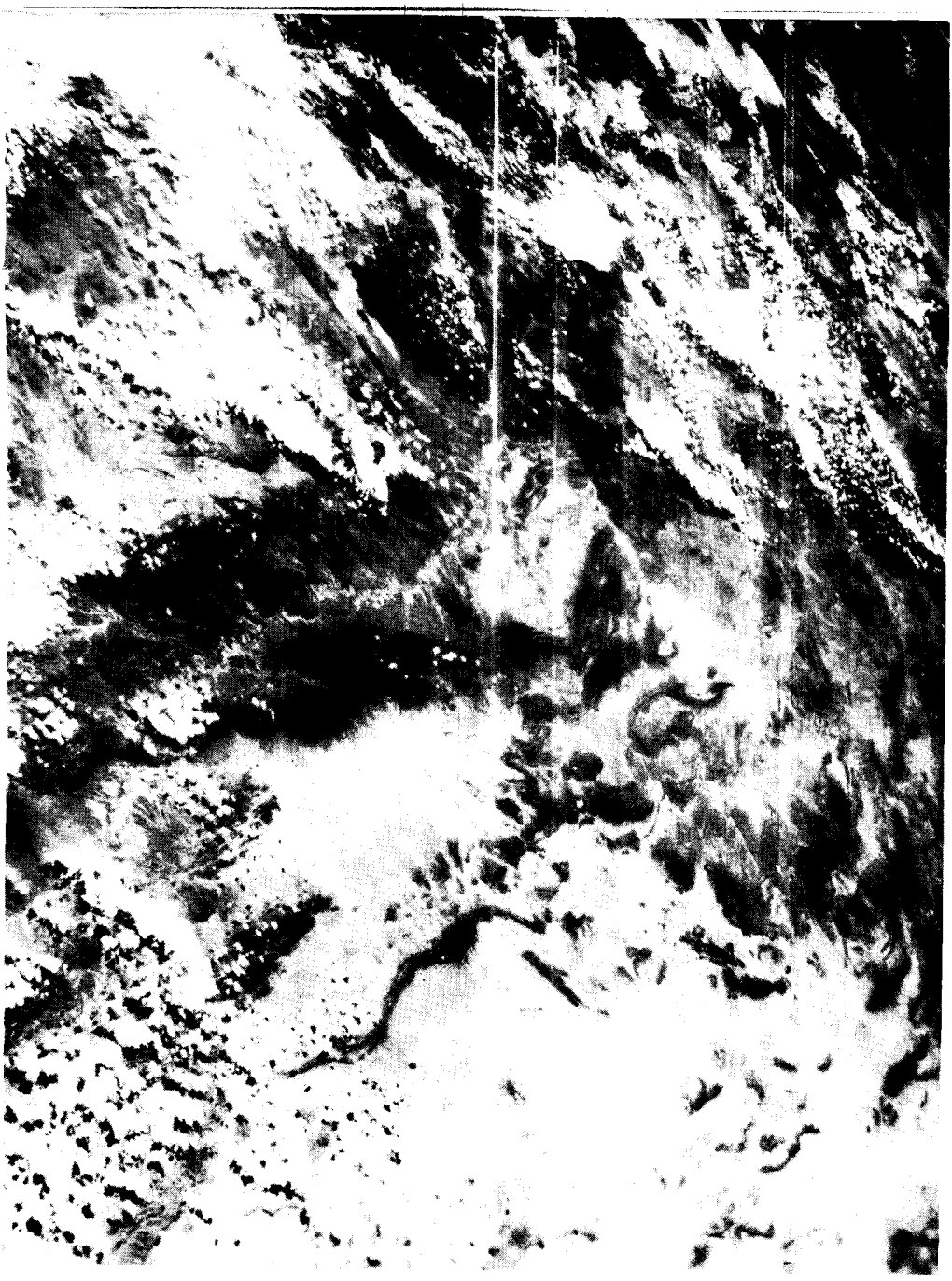

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half the diameter of our own world. With its lack of dense atmosphere, we can make out a world that is very much like Mars. Several large craters are evident, and their existence leads Martian astronomers to believe that the surface is probably pocked with craters. If Luna has an atmosphere, it must be quite thin, and it has been estimated that the lunar surface pressure is about twenty-five per cent that of Mars. All observational data points to Luna as perhaps the most likely place to encounter life in spite of the fact that the planet apparently has no seasonal cycles and has a rotational period equal to its orbital period around Terra. However, it is quite conceivable that life processes may not require seasonal cycles and that the long day-night cycle may provide a suitable substitute for a seasonal cycle. Recent laboratory experiments have shown that Martian life forms can exist when the seasonal temperature cycle and the day-night temperature cycle are combined into a single multi-day cycle.

On the other hand, Terra has a diameter not quite twice that of Mars and has been a planet of great mystery. Early observers noted a rapid change in albedo and no apparent permanent surface features. More powerful observing instruments and improved techniques revealed that the changing features were thick white clouds much akin to dust clouds. Spectroscopic studies showed that the clouds were not composed of dust but of hydrogen oxide in a semi-vapor state. Increased resolution permitted the real surface of Terra to be seen, and the planet was observed to have a rotational period slightly less than that of Mars. But, because of the continually shifting clouds that always covered a large percentage of the surface, observational data had to be accumulated over the span of many years before a decent map of the surface could be compiled.

Terra possesses polar caps like those of Mars, but the remainder of the surface is strangely divided in an almost random fashion between true land areas and large areas of liquid hydrogen oxide that were originally thought to be glassy sodium silicate. The existence of these large areas of liquid hydrogen oxide coupled with the persistence of the hydrogen oxide vapor clouds pointed toward a world so different from our own that surface conditions were difficult to imagine.

There are definite seasonal changes on the terrestrial surface. During the winter, the polar cap of the winter hemisphere grows alarmingly and often with great speed, extending almost halfway to the equator on occasion. The excur-

Figure 3: Looking nearly straight down from 150 miles above Terra, there is no sign of Martian-like surface features or any life.

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sions of the polar caps in winter are more extensive over the land areas, indicating that the hydrogen oxide areas remain for the most part in a liquid state. The coming of the spring season is accompanied by the shrinking of the polar cap and a wave of darkening that spreads from *the equator to the poles.* It often follows close behind the margins of the shrinking polar cap. This is quite unusual because the Martian spring occurs first at the edge of the polar cap and spreads equatorward as the cap releases its chemicals. The reason for the strange behavior of the darkening wave on Terra is unexplained.

The wave of darkening totally bypasses some areas that retain their light yellow coloration regardless of the season. Since these areas are usually without cloud cover most of the time, it has been theorized that they may be high plateaus. However, the existence of areas of high elevation on the planet have not been confirmed; due to the very diffuse red terminator of the planet, no shadow lengths of mountains have been observed and measured.

Some observers have reported an atmospheric glow near the terrestrial poles that may be due to some unusual refraction phenomena of the terrestrial atmosphere. There have been several recent reports of bright flashes on the surface that are probably due to impact of large meteors.

THE ARGUS I EXPERIMENT

The possibility of finding life on Luna and the baffling phenomena seen on Terra provided the motivation for the construction and launching of the instrumented space probe, *Argus I.* The mission of the probe was to measure and photograph the twin-planet system. Very high resolution camera systems were used. The *Argus I* package included instruments for charged particle studies, magnetic field detection, temperature measurements, and spectroscopic observations. The exact details of the construction of *Argus I* have appeared elsewhere in the literature, and the mission operations have likewise been reported.

Argus I was programmed to swing around both Luna and Terra and to photograph both planets. However, a malfunction in the midcourse correction engine resulted in a trajectory that at first was believed would lead to an impact on Terra and the resultant failure of the entire experiment. However, final tracking data indicated that the probe would swing to within one hundred fifty miles of Terra and would pass over that portion known to astronomers as *North America* during daylight.

Figure 4: The extreme randomness of the terrestrial surface is shown in Photo No. 4 from Argus. There is no pattern to the surface features and no surface relief obvious.

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Although only fifty per cent of the desired data was returned—there being no photographs of Luna—the results of *Argus I* have exceeded the most sanguine expectations of the Argus scientists.

Seven high-resolution photographs of Terra were made at an altitude of one hundred fifty miles. They show a planet totally unlike Mars. The most conspicuous difference is the absence of cratering, although the photographs show one or two possible craters. There is abundant evidence of a tremendous amount of surface erosion possibly due to liquid hydrogen oxide. The known chemical properties of hydrogen oxide would also indicate that there is an exceedingly high degree of corrosion of materials on the surface due to this extremely active chemical. The dual factors of erosion and corrosion may have completely erased all evidence of cratering and, if this is the case, the surface of Terra must be so violently changeable that it is difficult to understand how any plant life could manage to withstand these powerful forces.

The temperature instrumentation on board *Argus I* indicates a surface temperature of at least one hundred degrees Fahrenheit on the surface at noon. This elevated temperature would greatly hasten corrosion action due to hydrogen oxide.

The *Argus I* spectroscope gave us proof of the composition of the terrestrial atmosphere. Martian astronomers long ago detected evidence of free oxygen in the atmosphere, and *Argus* I has reported that it constitutes about twenty-five per cent of the terrestrial air. The presence of this extremely powerful oxidizer makes it difficult to understand how the chemistry of the surface operates. Free metals would immediately be oxidized. Combustion processes could take place with great ease and result in the liberation of tremendous quantities of heat energy into the surrounding atmosphere, which would in turn accelerate any oxidation. Free oxygen gas of this sort would quickly poison any life.

The surface pressure, long thought to be on the order of twice that of Mars, shows indications of being at least one hundred times that of our world. At this pressure, the free oxygen and the hydrogen oxide vapor could produce some highly unusual chemical reactions with other materials on a planet-wide scale. Such reactions as have been studied in Martian laboratories under these conditions have been characterized by extreme violence.

As long suspected by astronomers from a study of the terrestrial

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Figure 5: Resolution in this photograph, No. 5 from Argus, is about a half-mile. If there were intelligent life on Terra, its work would certainly be evident in such a photo.

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cloud patterns, the atmosphere is in violent instability at all times. The great disparity between the specific heat of liquid hydrogen oxide and ordinary soil leads investigators to believe that the atmosphere is exceedingly turbulent with very high winds possible. Because of the density of this atmosphere, the dynamic pressures of these winds would totally destroy even the most hardy Martians.

Some investigators have advanced the unusual and controversial hypothesis that, under terrestrial conditions, hydrogen oxide vapor may condense in the atmosphere and fall freely to the ground. This sort of thing would dissolve even the strongest of our materials and would make surface exploration very difficult.

One of the most unusual results of the *Argus I* experiment was the discovery of the very strong magnetic field possessed by Terra. It is felt by some that Terra may have an extremely dense magnetic iron core with physical properties similar to the nickel-iron that exists around most Martian craters.

This strong terrestrial magnetic field acts to entrap charged particles ejected from the Sun to form several shells of high particle density in the space around Terra. *Argus I* measured the activity in these shells during approach and retreat from the planet. The amount of energy trapped in these shells must eventually leak off into space or hit the surface of Terra near the magnetic poles. These shells shield the surface from this particulate radiation except near the poles, and, even though the incident solar radiation in the infrared and visible spectrum at the equator is many times that impinging upon the Martian surface, the absence of particulate rain at the equator casts strong doubt on the ability of life as we know it to exist there, even if the temperature and pressure could be tolerated.

The most likely place for life, as we know it to exist on Terra, would be near the magnetic poles where the entrapped particulate rain reaches the surface, thereby providing the energy to sustain life.

Finally, the *Argus I* spectrograph confirmed the existence of hydrocarbon lines in the spectrum of the blue-green areas. The source of the hydrocarbon is still unknown.

CONCLUSIONS

Argus I increased our knowledge of the terrestrial surface tremendously. It has revealed an environment that is hot and highly corrosive. There is little cratering evi-

Figure 6: One of the suspected craters on the terrestrial surface shows up in the upper center of Argus Photo No. 6 at the edge of the hydrogen oxide cloud formation. If this is a true crater, it shows signs of being severely eroded.

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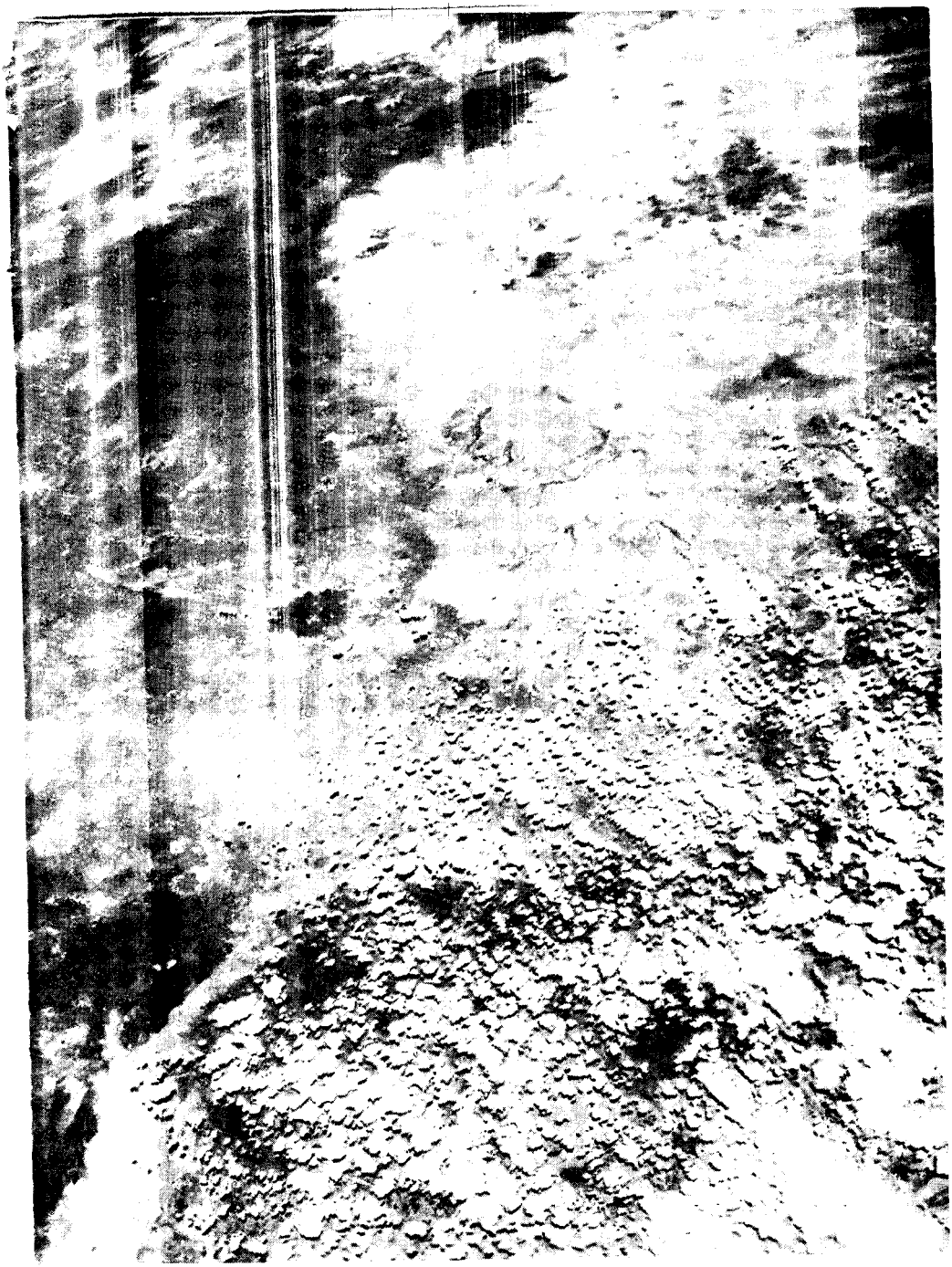

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dent, leading to the conclusion that the surface is being continually disturbed by very active chemical reactions. There is little incident solar particle bombardment of the surface due to the entrapment of such particles in the external magnetic field.

The *Argus I* photograph showed no evidence of the works of intelligent beings and, in view of the surface conditions, it would seem improbable that a high order of life could evolve on Terra. In fact, it is difficult to see how life as we know it could exist on Terra at all except near the poles—provided it could be protected from the free oxygen and the abundant hydrogen oxide.

Science-fiction writers are going to have to give up their fanciful view of Terra as a warm, lush abode of life similar to the Syrtis. Nor will we be able to colonize the planet easily. We would be consumed in the rich oxidizing atmosphere and would dissolve in the presence of the hydrogen oxide.

Terra is now known to be an extremely un-Martian planet, a world of violence and danger.

We must, therefore, proceed to investigate Luna, a world that promises to be much like our own. *Argus II* will be sent on its mission at the next favorable opportunity with the specific task of studying Luna. There is hope that *Argus II* will tell us that we are not alone in the Solar Systems and that Mars is not unique among planets.

AUTHOR'S NOTE:

It is not the purpose of this article to ridicule the N.A.S.A. space program or the magnificent technical achievement of the Mariner 4. *Its purpose is to caution us about drawing inferences from the data generated and yet to be generated by our national space program. Our outlook on the Universe is provincial—or perhaps "planetary" would be a better word. We have yet to learn what the Universe is all about.*

The photographs accompanying this article were made by a very high resolution camera with its lens corrected for vacuum conditions. It was flown aboard the U.S. Navy's Viking rocket #11 on February 22, 1955. The photographs are official U.S. Navy photographs taken from Viking #11 at an altitude of one hundred fifty miles directly over White Sands Missile Range, New Mexico. Figure 1 looks westward over Arizona toward the Pacific Ocean. Figure 3 and Figure 5 look down almost directly on El Paso, Texas, and the Rio Grande Valley separating the United States from Mexico. The other photos show the southwestern desert where there are plenty of mountains. ■

Figure 7: The last photograph returned from Argus I shows a semi-crater nearly in the center of the photograph, but indicates the violent disturbances that must continually change the face of Terra.

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An Ornament to His Profession

Among other interesting legal shenanigans in this story— I'd love to hear from anyone who can PROVE this yarn has any fantasy aspect!

CHARLES L. HARNESS

The world has different owners at sunrise . . . Even your own garden does not belong to you.

Anne Lindbergh.

Conrad Patrick reached over and shut off the alarm. The dream of soft flesh and dark hair faded into six o'clock of a Friday morning. Patrick lay there a moment, pushing Lilas out of his thoughts, keeping his mind dark with the room, his body numb.

To move was to accept wakefulness, and this was unthinkable, for wakefulness must lead to knowledge, and then the problem barbs would begin to do their ulcerous work in his brain. They would begin, one by one, until all were in hideous clamor. None of them seemed ever to get really solved, and getting rid of one didn't necessarily mean he had solved it. More often, getting rid of it just meant he had found some sort of neutralizing paralysis, or that he had once more increased his pain threshold.

Patrick got up heavily, found his robe and slippers, and stumbled

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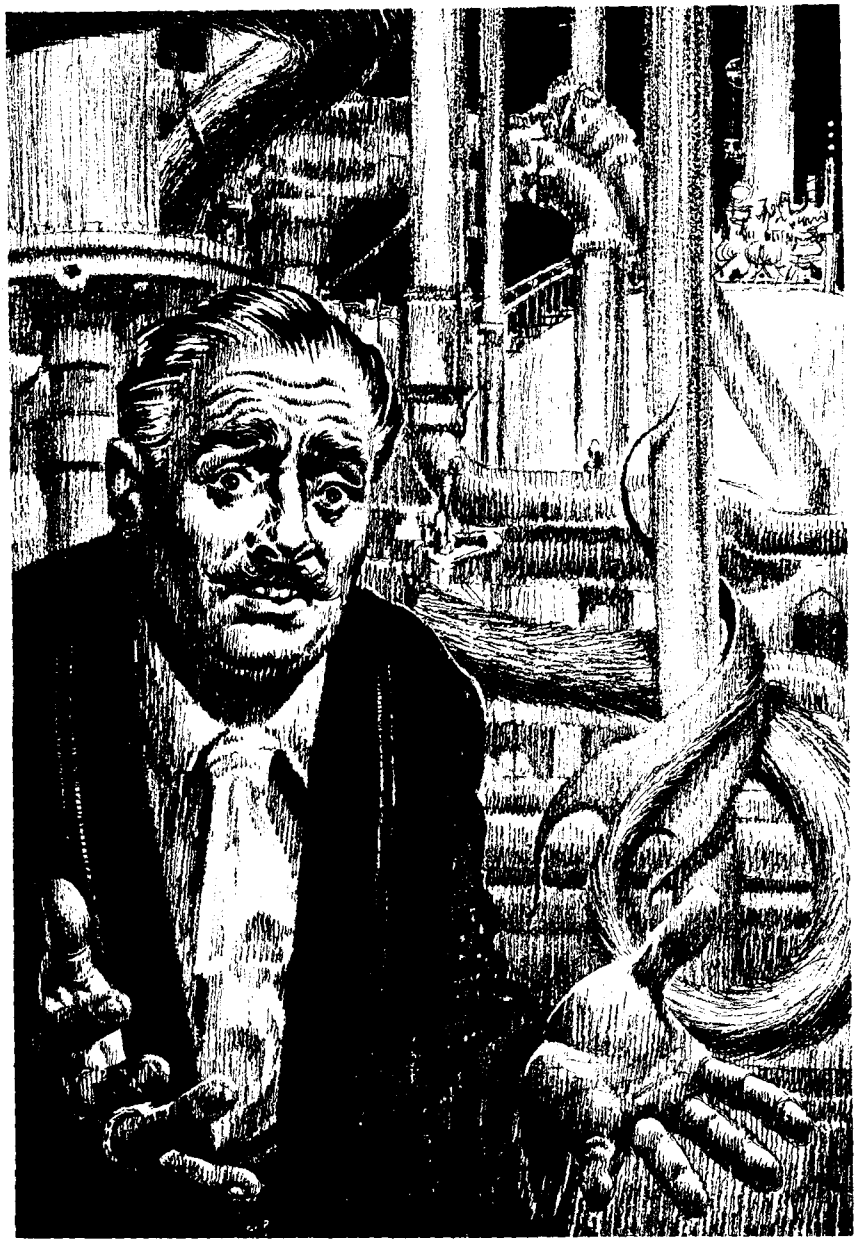

Kelly Freas

An Ornament to His Profession 101

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into the bathroom, where he turned on the light and surveyed his face with overt distaste. It was a heavy, fleshy face, and the red hair and mustache were awry. He was not exactly thin, but not really fat, either. His cheeks and stomach showed the effects of myriad beers in convivial company. He considered these beers, these cheerful hours, one by one, going back, in a mirrored moment of wonder and gratitude. He considered what life would have been like without them, and as the realization hit, his forehead creased uneasily. He scowled, dashed water over his eyes, and reached for a towel.

"Patrick," he muttered to himself in the mirror, "it's Friday. Another day has begun, and still the Company hasn't found you out."

Patrick no longer knew exactly what he meant by this routine, which he had started some years before, when he was the newest chemical patent attorney with Hope Chemicals. He had first been a chemist, but not a very good one, and then, after he and Lilas had got married, he had gone to law school at night. After he got his LLB he had discovered, with more fatalism than dismay, that he was not a very good lawyer, either. Yet, all was by no means lost. He was accepted by Hope's Patent Department. And not just barely accepted; he was accepted as an excellent chemical patent attorney. He found this incredible, but he did not fight it. And finally, he deliberately masked his supposed deficiencies; when he was in the company of chemists, he spoke as a lawyer, and when with lawyers, he was a chemist. And when with chemical patent lawyers, he didn't mind being just a fifty-fifty chemist-lawyer. They had his problem, too. It was like group therapy. Patent lawyers had a profound sympathy for each other.

From the beginning he had thrown himself into his work with zest. And now, with Lilas and the baby gone, his work was not just an opiate; it was a dire necessity.

He got the kettle boiling in the kitchen. There was now a pink glow in the east. He looked out the kitchen window and almost smiled. It was going to be a beautiful morning. He made the coffee quickly, four spoons of coffee powder in his pint mug, took the first bitter, exhilarating sip, tightened his robe about him, stepped out the kitchen door, and padded off down the garden path, holding his coffee mug carefully.

This again, was all part of his morning routine. Today, of course, there was a special reason. Theoretically the house and grounds were ready and waiting for the little party tonight, but it would do no harm to take a look around, down by the pool.

The flagstone path lay down a grassy slope, and was lined with

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azaleas. He and Lilas had put them in together. At the foot of the slope was a tiny stream, fed mostly by a spring half a mile away, on his neighbor's property. In this little stream Patrick had contrived a series of pools by dint of fieldstone and mortar, slapped together with such indolence into the stream side that the result was a pleasing but entirely accidental naturalness. These little pools were bordered with water cress, cat-o'-nine-tails, arrowhead, water iris, and lovely things with names he could no longer remember. He and Lilas had splurged one summer and bought all manner of water plants by mail. They had got very muddy planting them, and they had sorrowed over those that had died the next spring or that the baby had happily yanked. And then suddenly everything had begun to grow like weeds, and in a wild way, it was all very pretty.

The path along the stream led toward a grassy sward. Patrick stopped on the path a moment, and listened. Yes, there it was, very faint, like a tinkling of tiny bells. He held his breath. Around the turn of the path, and so far invisible, was the bench. He and Lilas used to sit here, overlooking the lily pond. Only then, of course, it wasn't the lily pond, but the baby's wading pool. It was . . . how long ago? . . . that she had splashed in the pool and her baby delight had shattered the garden peace. And that was what he heard now. And he could hear Lilas' answering laughter. This had happened to him on many past mornings. To him, it was not a conjured thing; it was faint, very far away, but it was real.

He began to walk again, and rounded the bend in the path. But as soon as the pool and the bench came in view, the sounds stopped abruptly. He had tried to deal with the phenomenon logically. This led him to various alternative conclusions, neither of which he completely disbelieved: (a) he was subject to hallucinations; (b) Lilas and the baby were really there.

Patrick sighed and looked about him. Here, all within a few steps of each other, were the lily pool, the benches, the outdoor grill, and the arbor. The arbor was a simple structure, framed with two-by-fours, bordered with lilacs that had never bloomed, and which enclosed his "work table." This was a stone-stepped table with a drawer, which contained writing materials and a few scribbled pages.

He looked into the arbor. From somewhere up in the ceiling of honeysuckle there was a flutter of wings. Sparrows. The "room" seemed to concentrate the odor of grass clippings, fresh from yesterday's mowing. Patrick glanced over at the stone table, and permitted himself the habitual morning question: Would he have a few moments to work on his article? This

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was followed by a prompt companion thought. He was being stupid even to think about it. In three years he had not even finished the first chapter. And already the Court of Customs and Patent Appeals had wrought far-reaching revisions in the law of prior printed publication. Maybe he should pick another subject. An article he could do quickly, get into print quickly, before the Court could hand down a modifying decision. Somehow, there must be a way to get this thing off dead center. A top-flight professional in any field ought to publish. Not that he was really that good. Still, as Francis Bacon had said, a man owed a debt to his profession.

He opened the drawer and pulled out the sheaf of papers. But he knew that he wasn't going to work on it this morning. A breeze fluttered the sheets. His eye cast about for a paperweight and found the candle-bottle; a stub of candle sticking in the neck of a wine bottle, used when he sat here at night and did not want to use the floodlights. He put the bottle on the papers.

Glumly he accepted his first inadequacy of the day. No use trying to hold the others back. The line forms to the right. The magic was gone from the morning; so be it. Let them come. He finished off his coffee. In his own garden he was a match for all of them. He left girded and armored.

They came.

One. His department was about to lose a secretary—Sullivan's Miss Willow. He hadn't told Sullivan. But maybe Sullivan knew already. Maybe even Miss Willow knew. These things always seemed to get around. He didn't mind interdepartmental promotions for the girls. He'd used it himself on occasion. But he didn't like the way Harvey Jayne was using company personnel policy to pressure him. And right now was a bad time to lose a secretary, with all those Neol cases to get out. As an army travels on its stomach, so his Patent Department traveled on its typewriters, or, more exactly, on the flying fingers of its stenographers as applied to the keys of those typewriters, "thereby to produce," as they say in patentese, a daily avalanche of specifications, amendments, appeals, contracts, and opinions.

He halfway saw an angle here. Maybe he could boomerang the whole thing back on Harvey Jayne. Have to be careful, though. Jayne was a vice-president.

Two, and getting worse. Jayne wanted publication clearance for the "Neol Technical Manual," and he wanted it today. It had to be cleared for legal form, proofread, and back to the printers tonight, because bright and early Monday morning twenty-five crisp and shining copies, smelling beautifully of printer's ink, had to be on that big table in the Directors' Room. Monday, the Board was going to vote

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on whether the company would build a six-million-dollar Neol plant.

Three, and still worse. John Fast, Neol pilot plant manager, wanted the Patent Department to write a very special contract. Consideration, soul of the party of the first part, in return for, inter alia, guarantee of success with Neol. It was impossible, and there was something horrid and sick in it, and yet Patrick was having the contract written by Sullivan, his contract expert, and in fact the first draft should be ready this morning. He was *not* going to refer Fast to the company psychiatrist. At least not yet. Maybe in two or three weeks, after Fast was through helping Sullivan get those new Neol cases on file in the Patent Office, he might casually menton this situation to the psychiatrist. Why did it always happen this way? Nobody could just go quietly insane without involving him. Forever and ever people like John Fast sought him out, involved him, and laid their madness upon him, like a becoming mantle.

Fourth, and absolutely and unendurably the worst. The patent structure for the whole Neol process was in jeopardy. The basic patent application, bought by the company from an "outside" inventor two years before, was now known to Patrick, and to several of the senior attorneys in his department, to be a phony, a hoax, a thing discovered to have been created in ghastly jest—by a man in his own department. This was the thing that really got him. He could think of nothing, no way to deal with it. The jester, Paul Bleeker, was the son of Andy Bleeker, his old boss and good friend. (Did anybody have any real friends at this crazy place any more?) And that was really why he had to come up with an answer. It would kill Andy if this got out. Certainly, he and both Bleekers would probably have to resign. After that there would come the slow, crushing hearings of the Committee on Disbarment.

Problems.

Was this why he couldn't write, why he couldn't even get started? He blinked, shook his head. Only then did he realize that he was still staring, unseeing, at the handwritten notes in front of him.

He leafed slowly through the scirbblings. How long ago had he started the article? Months? Nearly three years ago, in fact. He had wanted to do something comprehensive, to attain some small measure of fame. This was the real reason lawyers wrote. Or was it? Some time soon, he'd have to reexamine this thing, lay bare his real motives. It was just barely conceivable it would be something quite unpleasant. He gave a last morose look at the title page, "The College Thesis as Prior Art in Chemical Patent Interferences" and put the papers back in the envelope. He

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just didn't know how to put this thing back on the rails. Fundamentally he must be just plain lazy.

But time was wasting. He looked at his wristwatch, put the papers back, closed the drawer, and walked out to the lily pond again.

It was in the same wet sparkle of sunlight that he remembered his baby daughter, splashing in naked glee that warm summer day so many months ago. Lilas had stood there and called the baby out of the pool to get dressed, for that fatal Saturday afternoon trip to the shopping center. And his daughter had climbed out of the pool, ignored the tiny terry cloth robe, and dashed dripping wet into her father's arms. At least her front got dried as he held her writhing wetness against his shirt, patting her dancing little bottom with the palm of his hand.

Slowly he sat down again. It must have been that sunbeam on the pool. It was going to be bad. He began to shudder. He wanted to scream. He bent over and buried his face in his hands. For a time he breathed in noisy rasps. Finally he stood up again, wiped his gray face on the sleeve of his robe, and started back up the garden path to the house. He would have to be on his way to the office. As soon as he got to the office, he would be all right.

'Tis all a Chequer-board of Nights and Days
Where Destiny with Men for Pieces plays . . .
Omar Khayyam

Patrick sometimes had the impression that he was just a pawn on Alec Cord's chessboard. Cord was always looking seven moves deep, and into a dozen alternate sequences. Patrick sighed. He had long suspected that they were all smarter than he was, certainly each doing his job better than Patrick could do it. It was only the trainees that he could really teach anything anymore, and even here he had to fight to find the time. Nothing about it made sense. The higher you rose in the company, the less you knew about anything, and the more you had to rely on the facts and appraisals developed by people under you. They could make a better patent search than he; they could write a better patent specification, and do it faster; they could draft better and more comprehensive infringement opinions. In a gloomy moment he had wondered whether it was the same way throughout the company, and if so, why had the company nevertheless grown into the Big Ten of the American chemical industry. But he never figured it out.

He looked up at his lieutenant. "I understand it was the crucial game, in the last round. If you beat Gadsen, you won the tournament, and if he beat you, he won."

"Didn't realize you followed the sports page, Con," said Alec Cord.

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"Gadsen had white, and opened with the Ruy Lopez. You defended with Marshall's Counter Gambit. They gave the score in the paper. Somebody said it was identical, move for move, with a game between Marshall and Capablanca, in 1918, when Marshall first pulled his gambit on Capablanca."

"I wouldn't know."

"That's a surprise. They say you even had an article in *Chess Review* last year on the Marshall Counter Gambit."

Cord was silent. Patrick took a new tack. "Gadsen's that Examiner in Group 170, the one handling your Neol cases?"

"That's right."

"Including the basic case, the one we know now is the phony? The one our whole Neol plant depends on?"

"The very one."

"The one you would have given just about anything, even the Annual D.C. Chess Tournament, for Gadsen to allow?"

"All right, Con. But it's not what you think. I didn't throw the tournament. And Gadsen didn't throw the allowance. We didn't discuss it at all. I admit I let him win that game, but there wasn't any deal. It would have to occur to him, with no help from me, that there was something he owed me. He could have done it either way, and I'd have had no kick. Maybe he'd have given the allowance anyhow. In fact, for all you know, maybe he allowed the case despite the game, and not because of it."

"I won't argue the point, Alec. We may never know. Anyhow, the thing I came to see you about is this." He handed the other a legal-size sheet.

Cord's eyes widened. "An interference!"

"So maybe Gadsen allowed the claims just to set you up for an interference."

"Maybe. But not likely. If he were going to do that, he would have just sent the interference notice, this thing, without the allowance."

"Any ideas who the other party is?"

"Probably Du Santo. We've been picking up their foreign patents in the quick-issue countries, like Belgium. We'll know for sure after the inventors file their preliminary statements. Which brings me to the next question: How can we file a preliminary statement sworn to by a phony inventor who doesn't even exist?"

"I don't know. I want you to figure out something after we talk to Paul Bleeker."

"Take it from the beginning, Paul," said Patrick.

Paul Bleeker's face rippled with misery.

Cord said: "Maybe I'd better go."

"Stay put," said Patrick shortly. "Paul, you understand why we have to have Alec in on this. You're

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emotionally involved. You might not be able to do what has to be done. Alec has to listen to everything, so he and I together can plan what to do. You trust him, don't you?"

The young man nodded.

"It began as sort of a joke . . .?" prompted Patrick.

"Yes, a joke," said Paul. "When I was a freshman in law school. Harvey Jayne and those others were teasing Dad. That was when Dad was still Director of the Research Division, before they promoted him."

The light was dawning. Patrick sat up. "They were teasing him about the Research Division?"

"Yes, then Mr. Jayne said Dad's Research Division was essential, but only to verify outside inventions he bought."

"So you decided to booby trap Mr. Jayne?"

"Yes."

"You then wrote those patent attorneys in Washington?"

"Yes, I mailed them the examples for the patent application. They took them and changed them around a little bit, the same way we do here in the Patent Department. They added the standard gobbledygook at the front, and eight or ten claims at the back. They sent the final draft back to me for execution. The standard procedure. They sent me a bill for three hundred dollars. I paid that out of the money Mr. Jayne sent them, when he bought the invention. I still have the rest—four thousand and seven hundred dollars. I haven't spent any of it." He looked uncertainly at Patrick. "You won't tell Dad about this, will you?"

"Certainly not." Patrick looked at him with genuine curiosity. "But how were you able to make the oath? What notary would notarize the signature of 'Percy B. Shelley'?"

"Absolutely any, Con. They all just assume you are who you say you are, so long as you pay the fee."

Patrick was momentarily shaken. "But that's the whole idea of notarizing, to make the inventor swear he's truly the inventor, the person named in the oath."

Cord smiled faintly. "Not all notaries waive identification, Con."

"Well," said Patrick, "now we've committed perjury, sworn falsely to the United States Patent Office. So far, all they can do to you, Paul, besides disbarring you, followed by imprisonment in the Federal Penitentiary, is to strike your Shelley case from the files in the Patent Office."

The young man was silent.

Cord said: "Harvey Jayne bought the patent application only after he knew it worked. The whole thing depended on whether John Fast could reproduce it in the lab. Paul, how could you be so sure it would work?"

"If John did it right, it couldn't *not* work. I copied the examples

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right out of something in the Library. Somebody's college thesis."

Patrick brightened. "Alec?"

Cord shook his head. "Nothing like that ever turned up in our literature searches. We hit the Dissertation Abstracts, all the way back to the beginning."

Patrick turned back to Paul Bleeker. "You'll have to tell us more about this thesis. What was the name of the student? We'd also like the name of the university, and the year. In fact, anything and everything you can remember."

"All I can remember is these runs, tucked away in the back pages. They didn't really seem pertinent to the main body of the thesis. Other than that, I can't remember anything."

"You must have seen the title page," pressed Patrick.

"I guess so."

"You could identify it if you saw the thesis again?"

"Sure, but it's gone."

"Gone?"

"The library just had it on loan. They have hundreds come in, this way. Our people keep them a while, then send them back. You know the procedure."

"There must be some record."

Cord shook his head. "We've checked all the inter-library loans for the past five years. We found nothing. If Paul's memory is correct on the facts, that it *was* within the last five years, and the library *did* have it on loan, we are led to the conclusion that the thesis was done by somebody here at Hope, and lent on a personal basis to the Library, without any formal record."

Patrick groaned. "Our own inventor, here all the time? That's all we need. He'll scream. He'll take it to court. We've got to find him first, before he finds us." He turned to Cord. "Alec, add it all up for us, will you?"

"It admits of precise calculation," said Cord, "in the manner of a chess combination. There are two primary variations. Each of these has several main subvariations. None of them is really difficult. The only problem is to recognize that our tactics are absolutely controlled, move by move, by events as they develop."

Patrick raised his hand. "Not so fast. Let's take the main angles. The primary variations."

"First primary. We do nothing. If we're senior party in the interference, this means we take no testimony, but rely purely on our filing date. Chances: better than even. If we're junior party, we lose hands down.

"Second primary. We fight. Firstly, this gives subvariant A. With Paul's help we find the real inventor. We buy his invention from him, and, if he hasn't already published, we file a good and true application for him. We enter a motion to substitute the new case for Paul's case,

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and then we expressly abandon Paul's case. If this inventor actually has published in the way Paul remembers, this gives subvariant B. We find that thesis, then we move to dissolve the interference, contending that the sole count is unpatentable over the disclosures in the thesis."

Patrick twisted his mustache nervously. "However you state it, we wind up with no chance of a patent. Maybe we can live with that. Perhaps we can forego a patent-based monopoly. But there's one thing we *must* have—and that's the right to build the plant, free and clear from interference or infringement of anybody else's patent. Can we tell the Board we have that right? The Board wants to know. They're going to vote on it Monday. And I don't think we can tell them anything . . . not yet. The economics and market are there. Everything hangs on the patent situation. Bleeker says the vote will be to build, if the patent picture is clear. We're holding the whole thing up in our shop right here." He turned back to Cord. "Alec, take it from the college thesis. Run the variations off from that."

"Variation One," said Cord, "the thesis is a good reference. This means it adequately describes the invention, that it was at least typewritten, that it was placed on the shelves at the University Library, available to all who might ask for it, and that all of this was done more than one year before either Paul or his opponent filed their respective cases. This would support the motion to dissolve. Both parties would lose, and neither would get a patent, fraudulent or otherwise. With no basic patent to be infringed, it follows that anybody could build a Neol plant. Paul's application would be given a prompt final rejection and would be transferred to the abandoned files in the Patent Office. Then it would lie buried until destroyed under the twenty-year rule. Nobody would ever learn about it.

"Variation Two. The thesis for some reason is not citable as a good, sufficient, and competent reference under the Patent Office rules. For example, we might not find it in time, or if we do find it, it might really present substantial differences from Paul's disclosure. Even if we are senior party, we will not be able to negotiate a settlement of the interference without grave danger of discovery of what Paul did. If we turn out to be junior party, it's even more certain we can't settle the interference, but there's actually less risk of being found out, if only because the opposition won't talk to us."

Patrick's mouth dropped. "All right. We always come back to the thesis. We've got to find it. If we find it, we can build a Neol plant. If we can't find it, we can't build a plant, and even worse things will probably happen to a number of people in this company." He turned

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to Cord. "Have you and Paul exhausted every possibility, every lead?"

Cord nodded glumly. Paul Bleeker bent over and put his face in his hands.

Patrick sighed. He thought, "I'll have to do it the hard way. Tonight." He said, "Paul, you'll be over tonight, won't you?"

"Yes, Con."

"Thanks, fellows. Paul, would you ask Sullivan to come in?"

He must needes goe whom the devill doth drive.

John Heywood.

Patrick smiled at Sullivan. "Good morning, Mike. How are those Neol cases coming?"

"We're in good shape. John Fast and I will need a couple of more weeks, though. It's a whole series of cases. Covers the catalysts, the whole pilot-plant set up, the vapor phase job, everything. John and I get together every morning and dictate this stuff to Willow. She types her notes in the afternoon. Except that as of now she's about a week behind in transcription. If she left right now, the Neol patent cases would be in quite a hole."

Patrick met Sullivan's studied gaze noncommittally. "He knows," he thought. "They all know about Willow." He said easily, "I guess you're right. How about John? Will he stick with your program?"

Sullivan shrugged his shoulders. "He'd better. We need him. But, like I said, he needs us, too. And he insisted that you approve the contract. Do you want to see it?"

Patrick shifted uncomfortably. "It's nearly ten o'clock. He'll be here in a minute. You can read it to both of us, then."

Sullivan smiled. "You're getting off easy."

Patrick said, "I know what you're thinking, Mike. And you're right. We *are* going to turn him over to the psychiatrist. But not just yet. Not until you get these last three Neol disclosures written up. Another couple of weeks won't hurt him."

Sullivan's smile deepened.

Patrick said, "Medically, it certainly can't hurt to humor him."

Sullivan laughed. "Con, you're a sham, a fraud, and a hypocrite. Preserve him long enough for him to file his cases, then let him drop dead."

Patrick bridled. "That's putting it a little strong. If I thought for a moment . . ."

"Oh, come off it, Con. We're all on edge with this thing. Anyhow, you can take comfort in the thought that the Patent Department has simply ground out one more contract, one out of a hundred a year, doing their daily hacking, what they are paid to do, and therefore what they rejoice in doing. If you look at it that way, you have served your client to the very best of your ability, and at night you can sleep with sound conscience."

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Patrick growled, "If I didn't need you—"

Sullivan held up his hand. "Speak of the devil—"

"Come in," called Patrick.

John Fast entered the room. He was an average looking man, average size, of an average grayness. His face was almost without expression, perhaps a little sad. There was something unnerving in his eyes. They were acquainted with—

"Horror?" thought Patrick, wondering. No. That was too simple. John Fast was acquainted with the sub-elements of horror, with the building stones of terror, and with the unrest of darkness. And this was the man whom he would need tonight. "Hello, John," he said genially. "I hear your Neol cases are going a mile-a-minute."

"Going nicely, Con, thanks." Fast looked at Sullivan, then back at Patrick. "Is my contract ready?"

"Contract? Yes, of course, the contract. Mike and I have been going over it. Before we read it to you, though, we'd like to make sure we've covered everything. Now Mike here has heard your story, but I haven't. I'd like to hear it from you, straight, exactly the way it happened."

"It's a long story, Con."

"We've got lots of time."

"All right, then." Fast took a deep breath; his eyes grew distant. "I think it began with the ozonator. You know what ozone smells like? It's sharp, electric. In certain concentrations it's hard to distinguish from chlorine or sulfur dioxide. You know how the Bible talks about brimstone? Brimstone is sulfur, but there wasn't any sulfur in Palestine. The old prophets were just trying to identify an odor that was there long before they learned about sulfur. This creature moves in an atmosphere of ozone. He moves around in time and space, and to do this he applies an electrical field on the space-time continuum. Ozone is sort of a by-product, the same as when you run an electric motor. So this thing moves around in a fog of ozone. Not only that, ozone seems to attract him, the way nectar attracts bees.

"For a long time I didn't really realize he was around. And then last week I met him. It might have been an accident. But with all this Freudian theory, maybe there's no such thing as an accident. Maybe, on a subconscious level, I did it deliberately. Anyhow, you know we have a big structural formula of pentacyclopropane drawn in white paint on the floor of the pilot plant. This makes a star, with the methylene groups as the five points. It is also a pentagram—a starlike geometric design used in certain . . . rituals. Within the history of the United States, people have been burnt for making a pentagram. The stage was set. Just one more thing was needed: the Lord's Prayer recited backwards. This was provided.

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I'm a steady churchgoer. Bible class on Sunday mornings. Last Sunday I took my office tape recorder to Bible class. Yes, we said the Lord's Prayer. It was still on the tape when I was going to dictate my monthly progress report. I rewound the tape, so there it was, everything going backwards on audio. I was inside the pentagram. And suddenly, there—it—was, on the other side. I was so scared I was petrified. I wasn't surprised. Just scared. Maybe that means I knew what I was doing. So we stared at each other. Except I wasn't sure what I was staring at. But it was definitely a shape, with arms, head, eyes . . ."

"You were tired," said Patrick. "You know how fatigue can induce hallucinations."

"It's not that simple, Con. There *was*—there *is*—something there, some kind of elemental force. It's a being, an intelligent being. And powerful, in strange ways. It can . . . alter the laws of chemistry and physics. I got it to increase the yield of terpineol—'Neol'. At first, by about ten per cent. Then another ten per cent. It was easy. And then last night we started up the pilot plant. We ran the C-10 through first, cold, just to flush the lines and check the flowmeters. We got the ozonator tied in about midnight. Now you understand the ozone won't start reacting with the C-10 until you hit about one sixty F., and we'd planned to turn steam into the jacket after the ozone concentration had built up to about five per cent. But the reactor began to warm up. It hit one sixty in a matter of seconds. The two technicians on shift were scared. They ran over behind the explosion mat. I stayed put. I knew what was going on. *He* was doing it. I wanted to know how far he could push it. I shunted the C-10 through the flowmeter. I switched in the product receiver. It took about thirty minutes to feed one pound mole of C-10 . . . exactly one hundred and thirty pounds. I shut everything off. I had been watching the product scales all along, so I knew what it was going to be. It was one hundred fifty-four pounds, one pound mole of Neol, exactly. Yield: one hundred per cent of theory.

"They came out from behind the mats, then. They looked at the graphs. Nobody believed the graphs. They looked for a weighing error. They knew it couldn't happen. So I told them to check the meters. The meters were all right. I knew there was nothing wrong with the meters. Then we started another run. The reaction didn't start cold this time. So we turned the steam into the jacket. That was supposed to start the reaction. We usually start getting terpineol in the receiver at about one sixty. We watched it for a good hour. Not a drop of product. Just C-10 going in, C-10 coming out. We couldn't explain it. We were making ozone. The ozonator was O.K. We had the

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right concentration of C-10, the right temperature, mole ratio, space velocity, everything was right. But not a gram of terpineol was coming out. *He* wanted to *show* me, you understand, that he could control it either way. But he was going to leave it up to me which way it went. I didn't want to decide right then. I didn't know what to do. Just then I didn't even know how I could tell him, if I did decide. So we simply shut down and knocked off.

"I went home, but I couldn't sleep. I tried to think it through. And I guess I did think it through. This *being* can put me through. With him on my side I can do anything. There's no position in this corporation I couldn't have. And *that* would just be a starter. I don't know where the end would be. So I want to make the deal. I know exactly what I want. And what *he* wants. He wants, well, he wants *me*. Not my body, really, or anything like that. It's more like something mental. He wants to take it from me a little at a time, like a parasitical drain. But it wouldn't affect me physically or mentally. In fact, I'd get sharper all the time. And whatever it is, it would go so slowly, day-by-day, that I wouldn't notice it. This goes on for years. I'll even have a normal life expectancy. When he's got all of it, I'll die. And that's the deal. The next thing is to get it down on paper. Something he and I can both sign. A binding contract. It doesn't matter whether you believe he exists. Call him the Devil if you like. And call the thing I'm giving him, my soul. A lot of people who believe in God don't believe the Devil exists. And some of them don't believe in souls, either. Although, as I said, it isn't really that simple."

There was a long silence.

"The contract?" prompted Fast.

Patrick nodded, as in a dream, to Sullivan.

Sullivan began: "This Agreement, made as of this blank day of blank, in the year of our Lord—"

"Not 'of our Lord'," said Fast.

"Quite so," said Sullivan. "I'll fix that." He continued: ". . . By and between John Fast, hereinafter sometimes referred to as 'Fast', and His Satanic Majesty, hereinafter sometimes referred to as 'The Devil', Witnesseth: Whereas Fast is desirous of certain improvements in his present circumstances; and Whereas The Devil is able to cause and bring about said improvements; now therefore, in consideration of the mutual promises herein contained, and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows: Article One. The Devil shall promptly cause the Hope Chemical Company to erect a plant for the production of terpineol, hereinafter referred to as 'Neol', and to make Fast the manager thereof. The

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Devil shall, with all deliberate speed, cause Fast to become a world-famous chemist, rich, respected, and to win at least two Nobel prizes. Without limiting the generality of the foregoing, The Devil will immediately enter upon the performance, and will continue same, for the full term of this Agreement, of every obligation set forth on Exhibit A, annexed hereto, and incorporated by reference herein."

Sullivan looked up at Fast. "You wrote out the list?"

"Right here."

"Mark it 'Exhibit A'," said Sullivan. He continued. "Article Two. Fast hereby assigns, grants, conveys, sets over, and transfers all his right, title, and interest in and to his soul, to the said Devil, on the death of Fast; provided, however, that Fast shall live until the age of seventy, and that during said period The Devil shall have met faithfully, and in a good and workmanlike manner, all his obligations, both general and specific, as above set forth."

Patrick nodded. "That's fine."

"We had to change some of our 'boiler-plate' clauses," said Sullivan. "Others we had to leave out altogether. For example, we thought it best to omit completely the 'Force Majeure' clause, whereby the Devil is relieved from his obligation to perform, if prevented by an Act of God, but can nevertheless require you to perform, that is, give up your soul."

"Logical," agreed Fast.

"And we had to change the 'construction and validity' clause. Ordinarily we provide that our contracts shall be construed, and their validity determined, under the laws of the State of New York. However, we think that under New York law the contract might be held invalid, as having an immoral object, and hence unenforceable by either side. So we changed it to Hawaiian law."

"Yes," said Fast. "It's all ready to sign, then?"

"Right there, there're lines for the signatures of both, ah, parties," said Sullivan. "Are we to understand, John, that the Devil will actually affix his signature to this document, in real pen and ink?"

"I sign in blood," said Fast calmly. "How *he* signs, I'm not really sure. All I know is, he'll do something, maybe make a special appearance, to let me know that he accepts."

"I see," said Patrick. (He saw nothing.) He asked curiously, "But why do you think you need the Devil? An energetic man with a solid technical background and a high I.Q. in a big, growing chemical company doesn't need assistance such as this."

Fast looked at him in surprise. "Coming from you, Con, that's a very strange question."

"How is that?"

"I accept aid from any source, because I am totally committed. But so are you, and therefore, you, too, will accept assistance without

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asking the cost, or to whom the payment will be made."

Patrick felt a flurry of confusion. "And to what am I totally committed?"

"To your patents. Did you not know?"

Patrick had to think about this. Finally, he shook his head, not in denial, but to admit incomprehension. "Well," he defended. "It's my job."

Fast's mouth, immobile and cryptic as the Mona Lisa's, seemed almost to smile. "Yes, but only because you have contracted for it. So you see, what I have done is not a particularly strange thing. You . . . everyone . . . has entered into his own private contract, with something. My only difference is that I have put mine in writing. This does not necessarily mean that I am more honest than you. Perhaps I am merely more perceptive.

"True, my deal is with the Devil. But is that immoral? Morality is relative. *My* action, *my* way of life, has to be evaluated against the background of *your* action, and *your* way of life. You think me immoral, if not insane. Yet you wrote this contract for me. Why? Because you want to keep me happy. And why do you want to keep me happy? So that I'll keep your patents coming. Therefore you've made your own contract—with your patents. You resolve all questions of sin, virtue, and morality in light of the effect on your patents. With you, nothing can be sinful—even an assignment to hell—if it helps your terpineol patents. Before you judge my contract, take a look at your own."

Patrick stared at the gray man. Finally he smiled uneasily. "Whatever you say, John."

"And now I'll do *you* a favor, Con. Change the name."

"Change what name?"

"Neol. It's wrong."

"What's wrong with it?"

"The sound; wrong altogether. If you should ever have to . . . call . . . anyone with it, it wouldn't do it. Also, you ought to have five letters, exactly, one letter for each point of the pentagram. Correct symbology is essential."

"Whom would I be calling?" said Patrick. "And why?"

"You know . . . for your patents."

Patrick looked blank, then frowned, then finally he smiled. "All right, John. Whether or not you're a mystic, I'll give you 'x-plus', for mystification."

After Fast had gone, Patrick and Sullivan stared at each other.

"Do *you* believe any of that?" said Patrick.

"I believe he *thinks* he saw something. A kind of self-hypnosis."

"How about the yield. You know one hundred per cent of theory is impossible."

"No, Con, I don't know that. And neither do you. Within experimen-

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tal errors, he may well have got one hundred per cent. And even if he didn't, he really might have got fairly close to it. A pilot plant always does much better than a bench scale unit. You just naturally expect the yield to be high. All the variables are optimized, easily controlled."

"So you think he just hypnotized himself into seeing the devil?"

"Why not? Actually, he's an accomplished amateur hypnotist. I'm told he is quite a parlor performer, if you can catch him."

"I know. He'll be at the party tonight, for something like that. But he's wrong about me. I'm *not* totally committed to my patents. It's my job, the same as it's your job. John Fast doesn't know what he's saying."

Sullivan's eyes twinkled wickedly. "You're absolutely right, Con. There are *some* things you would not resort to, even to save the Neol patent position. You would *not* sell your own grandmother into white slavery even if it would win the interference and solve the whole problem." He paused, then added maliciously. "Would you, Con?"

Patrick snorted. "Don't tempt me!"

"Are you going to change the name?" asked Sullivan.

" 'Neol'? "

"You know what I mean."

"Well, maybe. There's nothing really wrong with 'Neol'."

"Except that John Fast thinks it's wrong."

". . . Without saying how to make it right," added Patrick. "I want to think about it. And I might change it, just to be ornery."

That which we call a rose
By any other name would smell as sweet.

Shakespeare

Patrick sat in his office, looking at the proofs of the "Neol Technical Manual," and thinking hard. This was Harvey Jayne's Manual, and Jayne was trying to steal Miss Willow. But Jayne needed Patent Department clearance for his Manual. Right away, this suggested possibilities. This morning, he had it nearly figured. And then John Fast had decided the name was wrong. And what difference did it make to John Fast? He wasn't even going to ask, because tonight he was going to need the man.

But *could* he change the name? How sacred was this Manual to Jayne?

Patrick considered the matter.

He knew, certainly, that a technical manual prepared and published by an American chemical giant was like nothing else in the world of books. It was the strange child of the mating of the laboratory with Madison Avenue, midwifed by the corporate public relations committee. It told all. It was rich in history, process descriptions, flow sheets, rotogravures, chemical equations, and nomographs. It was comprehensive, and its back pages were

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filled with thousands of arrogant footnotes. The stockholders of Hope Chemical were given the impression that the sole function of the "Neol Technical Manual" was to incite an unendurable craving for Neol in the hearts of purchasing agents throughout the country. But Patrick knew that the compiler privately harbored other motives. For that man, Harvey Jayne, it represented an opportunity for creativity that comes only when the company builds a new plant; it could not happen to Jayne twice in one lifetime.

In this manual, Harvey Jayne would have a ready-made solace for whatever disasters might lie ahead. His wife might on occasion fail to recognize his greatness; his son might fail in school; he might, alas, even be laterally transferred within the company. Yet, withal, his faith in himself would be restored, and the blood brought back into his cheeks, when he gets out his old Technical Manual, to read a little in it, to fondle its worn covers, and to look at the pictures. So doing, Harvey Jayne might murmur, with tears in his eyes, as did Jonathan Swift, re-reading "Gulliver's Travels", "God, what genius!"

So, thought Patrick, this volume will be cherished forever by Harvey Jayne. He will keep it in his office bookcase, with a spare in his den at home. When he transfers, it will be carefully packed. Years later, for presentation at his retirement dinner, his lieutenants will borrow his last copy from his wife, or perhaps steal one from the company library. They will have it bound in the company colors, blue and gold; and the chairman of the board, the president, and numerous fellow vice-presidents will autograph its pages.

Now, brooded Patrick, the whole of this immense and immemorial undertaking, this monster, this Manual, centers around the product trademark, which is as essential to it as the proton to the atom, the protoplasmic nucleus to the growing cell. The Manual is known by this name. Once thus baptized, the name is sacred. And to deny this book its name, to suggest that its name is wrong, that it should have another name, is to invite the visitation of the Furies, for this is desecration, a charge so sinister that it must rank with defamation of motherhood, or with being against J. Edgar Hoover.

Yes, there were possibilities. For personal disaster. He could not change the name of the Manual. And yet he was going to. Why? he wondered. Why am I going to do this? I am as crocked as John Fast. His mind floundered, searching. I have to fight Harvey Jayne, that's why. No. That's not why. It's something else. John Fast said the name was wrong. The new name should have five letters. He tugged briefly at his mustache, then leaned over to the intercom.

Books cannot always please.
George Crabbe.

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"Con," said Cord, "It's not really bad. A few editorial changes should do the job."

Patrick's face was a blank. "How about 'Neol'? "

"It's clear. The closest thing is 'Neolan', registered for textiles."

Patrick brightened. "Clear? It's a clear case of infringement!"

Cord stared at him. "What . . . what did you say?"

"I said it infringes. And I hasten to add, Cord, my boy, that you look quite strange, with your mouth open." He reached for the phone and dialed Jayne.

"Oh, hi there, Harvey . . . No, I didn't call to protest about Miss Willow. We're really grateful you can do something for her, Harvey. Her place is with you, Harvey. On one condition . . . It's this, Harvey, that you double her raise. She's worth every bit of it. Good, Harvey, splendid you see it our way . . . Tech Manual, Harvey? Yes, we're looking at it right now. No, Harvey, I'm afraid we can't do that. There's a very close prior registration that will probably kill Neol as a trademark. No, Harvey, please get that out of your head. Miss Willow has nothing to do with it. She will transfer with our very best wishes . . . That is indeed your privilege, Harvey. If you want to present the Manual to the Board on Monday morning without Patent Department clearance, go right ahead. It would, of course, be my duty to give Andrew Bleeker a memo itemizing my objections, absolving the Patent Department of all responsibility for the content of the Manual. There will be carbons, of course, to . . . You will? Why that's fine, Harvey." He hung up. "He's coming over."

"I'm amazed," said Cord dryly.

"Keep your fingers crossed on Willow."

"But you said the louse could have her, with a double raise," said Cord.

"Alec, you wouldn't believe me if I told you what is about to happen. So I won't waste time. We have only a few minutes before Harvey is due to show. So—*Cord.*"

"Yes, Con?"

"I didn't address you. I merely stated your name. It turns crisply from the tongue, like honest bacon in the griddle. A fine name. Cord, Cord, Cord. A good word to say. Here, I'll write it, too. Flows easily on paper. Cord looks good. Listens good. Charming. A man's name is the best thing about him. Like Narcissus. Hello there, you beautiful name!"

Cord flushed red. "Con, for goodness' sake. It isn't at all remarkable!"

"Yes, my boy, it is . . . to you." He leered at his lieutenant. "A man's name is his most enchanting possession. For you, for me, for Harvey Jayne, for anybody."

"So?"

"That's how we find a substitute for Neol. We will derive us a new word, from 'Jayne'. Harvey will find

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it irresistible. And it will be a good trademark. Think of the trouble American Cyanamid had, trying to find a trademark for their acrylic fiber. They finally named it after the project leader, Arthur Cresswell. They called it 'Creslan'. And Cluett-Peabody, naming their 'Sanforize' process for preshrunk fabric after the inventor, Sanford. And think of how many of Willard Dow's products are 'Dow' something or other, 'Dowicide', for example. And look at Monsanto's 'Santowax'; 'Santowhite', 'Santomerse'. And Du Pont's 'Duponol', and W. R. Grace's 'Grex' polyethylene. So we'll name our terpineol after Harvey Jayne. 'Jayne-ol'. Of course not exactly 'Jayne-ol'. We'll have to fix it so he won't recognize it. Some phonetic equivalent."

"He'll recognize it, Con. It'll just make him madder."

"No, I don't think he will. A man has a selfish complex on his own name. He loves it, and he doesn't want other people to have it. He has trouble remembering people who have similar names. So if we do this right, he won't recognize it when he hears it. It'll fascinate him, but he won't understand why. He'll approve it on the spot. But first, we'll have to work him over, soften him up a little. So listen carefully as to what you have to do."

"Harvey," said Patrick, "you're making us revise our company leaflet on trademarks."

"I didn't know you had one," said Harvey Jayne suspiciously.

"It lists everything that shouldn't be done—all possible error. At least it *did*. Now, you've added a few more. We'll have to revise."

"This brochure. You wouldn't happen to have a copy—"

Patrick handed him the leaflet. "Brand-new edition, just off the press this afternoon."

Jayne read slowly. " 'The trademark should be capitalized, and preferably set in distinctive type. If the trademark is registered in the United States Patent Office, follow it with the registration symbol, ®. If no application for registration has been filed, or, if filed, not yet granted, then use an asterisk after the trademark, with footnote identification, Hope Chemical Company's trademark for . . .'." He looked up. "I'm not sure I follow your reasoning on this particular point. For example, I didn't capitalize 'neol'. I don't care whether it's capitalized or not. And I didn't say 'trademark' every time I said 'neol'. I just said plain old neol. I want it to become so familiar to our customers that they'll think of it as a household word."

Partrick shook his head sadly. "Harvey, I understand your viewpoint, and I deeply sympathize. Such charity and philanthropy are all too infrequent in this hatchet-hearted corporation."

"Charity? Philanthropy?"

"Yes. Really touching. Gets me, *here*." Patrick struck his fist to his chest. "You want to give the trade-

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mark to the general public, including our competitors. Come one, come all, anybody can use this name, which isn't a trademark any more, because Harvey doesn't want it spelled with a capital."

"I don't see how spelling it lowercase prevents it from being a trademark."

"It converts it into the *thing itself*. Remember 'cellophane'? It used to be Du Pont's trademark for transparent wrappings, and it was spelled with a capital 'C'. And then it became so well known that the newspapers and magazines began spelling it lower case, and they never mentioned it was Du Pont's brand of anything, because everybody by that time thought of cellophane only as the transparent wrapping itself. It had become the common name of the thing itself: it had become *generic*. Now anybody can sell his own transparent wrapping and call it 'cellophane'. Cellophane has now joined the list of irresistible trademarks that are wide open to the public: shredded wheat, mineral oil, linoleum, escalator, aspirin, milk-of-magnesia."

"Anything else wrong?"

"Several other points. On the title page, you ought to say 'Copyright, Hope Chemical Company'."

"But how can I say 'Copyright' before we publish? I thought you just said you couldn't do that. You said we couldn't say Neol was registered."

"I won't try to explain it, Harvey. That's the way it has worked out historically."

"Anything else?"

"We don't like your trademark, 'Neol'," said Patrick. "We think it infringes at least one mark already registered. Besides which, it's a weak mark, made up of weak syllables."

"What . . . what are you saying?" sputtered Jayne. "There's nothing wrong with 'Neol'. How can it be weak?"

"Look at it this way," said Patrick smoothly. "Fashions in trademarks come and go, like women's hats. At the moment, the ad people are conditioned to think in terms of certain well-worn prefixes and suffixes. The suffix is supposed to classify the product as a liquid, a solid, a plastic, a synthetic fiber, a flooring compound, soap, deodorant, toothpaste, and so on. True, they have their differences, but these are minuscule. The pack of them are so much alike you'd take them for a children's *a capella* choir."

"That's probably true for most trademarks," said Harvey Jayne smugly, "but not for 'Neol'. 'Neol' was selected by our computer, which was programmed to synthesize words from certain mellifluous-sounding syllables, and to discard everything harsh. And not only that, but to present a final list of one hundred names graded according to final audial acceptance. 'Neol' headed the list."

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Patrick shook his head pityingly. "Look, Harvey, when you use a computer, you've got two-and-a-half strikes against you from the start. In the first place, the only marks the computer can grind out will be made up of these forbidden syllables we've already ruled out. And secondly, no computer can zero in on the gray area between the legally acceptable 'suggestive' marks and the legally unacceptable 'descriptive' marks. Even the courts have a hard time with this concept. To demonstrate this, we are going to decomputerize 'Neol' for you."

"De . . . computerize . . .?"

"Yes, our decomputer takes a computerized trademark and tells us whether it's too close to known marks or names to be registrable."

"May I see it, this decomputer?"

"You could, but that won't be necessary. It's so simple, I'll just describe it to you briefly. It consists of two cylinders, rotating on the same shaft, one next to the other. On the left cylinder we have prefixes; on the right, suffixes. All our syllables were compiled from trademarks in the chemical and plastics fields. When a new trademark comes in, we break it down into syllables and see if it's in our decomputer. If it's not here, we search it in the Trademark Division of the Patent Office, in Washington."

"What syllables do you have on your, ah, decomputer?" said Jayne uneasily.

"Really only the extremely common ones. For prefixes, things like 'ray', 'hy', 'no', 'ko', 'kor', 'di', 'so', 'ro', the 'par-per-pro' set, 'vel', 'val', and of course, 'neo'."

"Neo, you said?"

"Yes, 'neo', which is simply the Greek variant of 'new', which again frequently comes out as 'nu', or in the Latin form, 'novo'."

"And I presume 'ol' is among your proscribed suffixes?" demanded Jayne bitterly.

"Yes, that's 'ol', from Latin, 'oleum', oil. So that gives us 'Neol', or 'new oil'."

Jayne frowned and looked at his notes. "Well, how about 'Neolan'? Or do you have 'lan' in your suffixes, too?"

"Yes, indeed. But there again, we consider 'lan' as a species of the 'on' family, from 'rayon', of course. Between vowels, 'on' takes a consonant, so you would come out with 'lin', 'lan', 'lon', and so you have 'neolan'."

"How about 'neolite'?" said Jayne.

"Afraid not, Harvey. 'Lite' is a standard, but weak, suffix. It's from Greek, *lithos,* stone. Thousands of minerals with suffixes 'lite' and 'ite'. So we have all kinds of trademarks ending the same way, 'lite', 'ite', 'tite', 'nite', to suggest something hard, solid, tough, and so on. So, let's not pick anything ending in 'lite'. Certainly not 'neolite'. And for the same reason we can't recommend the 'plastic' suffixes, 'flex-tex-lex-ex-ax-ak' . . ."

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Jayne threw up his hands. "Well, then, you fellows just do whatever you have to do, to fix this. Say the right words over it. Do your legal mumbo jumbo."

Patrick studied Jayne quietly for a moment. "Harvey, I'm going to do something I shouldn't. I'll clear a trademark—no, not Neol. Some other mark."

Jayne looked dubious. "*We* would have to originate it. Our ad people have to screen these things. All kinds of image and audio requirements."

"Impossible, Harvey. This is not a job for the agency. All they can do is put together syllables to skirt along the fringes of what they think your customers will almost but not quite recognize. The way they draw up those lists, they practically guarantee their mark will be weak. Leave them out of this. I'll give you a mark I will guarantee *you* will like and that will not infringe any existing mark."

"But if it isn't on my list, how can you be so sure I'll like it?"

Patrick smiled. "We've never lost a customer."

"Probably it will be very similar to a trademark on my list."

Patrick picked up the list and scanned it briefly. "No, I think not. But we're wasting time. Let's move on to the next item."

"Next item?"

"Payment."

"Charge my department."

"You don't quite understand, Harvey. Let's go over it again. I'm promising you a clean, desirable trademark. I'm giving you a guarantee—on something that as yet doesn't even exist. I don't have to do it. This is above and beyond the call of duty. A big favor to you."

"So?"

"If the company gets sued, you're in the clear, but it's a black eye for me. They'll say Hope needs a younger man in their Patent Department. Patrick is slipping. And then the next time it happens, I'm out on my ear. So I'm taking a chance, and I want payment."

Jayne was suspicious. "Like what?"

"We need not be crass. You could offer a prize for a suitable mark."

"And *you* would win it?"

"The Patent Department would win it."

"Go on," said Jayne acidly.

"The prize couldn't be money."

"I can see that. As you say, crass. How about wall-to-wall carpeting?"

"No."

"A conference room . . ."

"Not that, either."

"Electric typewriters . . ."

"Not exactly what I had in mind."

"Then what *do* you want?"

Patrick leaned over and murmured, "Willow."

Jayne was silent for a moment. Finally he said, "I don't know what to say. It's cheap, shoddy, not in character with you, Con. Furthermore, I don't make the rules. This promotion program is a company

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policy. It's not anything you or I have anything to do with. I need a secretary. I have a vacancy. I either fill it by promoting a girl from the lab, or I go outside. I think it's a good policy."

"So do I," said Patrick morosely. "I hate to do this."

"You don't have to do it. In fact, you're being absolutely unreasonable. If you insist on doing this to me, I'll have to take it up with Andrew Bleeker."

"If you do that, you could get me in trouble."

"As you say, I would hate to have to do it."

"At the same time, you will also have to mention to Bleeker that you couldn't get the Manual out in time for the Board. You won't have to tell him why, though. He'll be first on my list of carbons of my trademark infringement report to you. He will not be happy."

The room became very quiet. The pale drift of typewriters ebbed and flowed in the outer bays.

Jayne's restraint was massive. "You win."

"Thank you, Harvey. And now, just so we won't have any misunderstandings, when Miss Willow comes back to us from having been your secretary, she'll keep her double raise?"

"I thought that she was never leaving you. How can she come back to you?"

"It's all over the place, Harvey, that she's being transferred to you. If we kept her here, she'd be entitled to think that we cheated her out of a raise. So we have to get her transferred to you on the books, get her double raise, and then transferred back to us on the books. Physically, of course, there would seem to be no reason for her to transfer . . . that is, clean out her desk, or anything like that."

"So that not only I don't get a secretary, Willow gets two raises."

"But you get a clean bill of health for your Manual."

"And a good trademark?"

"Absolutely." Patrick was solemn. "We can pick one here and now. We guarantee we can get the trademark application on file this afternoon. All we need is a more exotic name—one not made out of these garden variety building units. A really *beautiful* name."

Cord picked up the cue. "How about some foreign words that mean 'beautiful'?"

"Well, there's a thought. Harvey, what do you think?"

Jayne shrugged his shoulders. "Like what?"

"*Pulchra*—Latin for 'pretty'," said Cord.

"Hard to do anything with it," said Patrick. "What else?"

"*Kallos*—'beautiful' in Greek."

Patrick looked doubtful.

"*Bel*?" said Cord.

"That's a little better. What is it in Italian?"

"*Bella*."

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"Still not quite right," said Patrick.

"You could take a big jump. 'Beautiful' in German is *schoen.* You'd have to Anglicize the accent a little, give it a long 'a'."

"Ah yes. 'Shane'. *Shane!*" Patrick's eyes lit up. "I really like that. Harvey?"

"Not bad. Shane. Hm-m-m. Yes, I must admit, there's something about it. Something tantalizing."

"I hear it, too, Harvey."

Cord's eyes rolled upward briefly.

"How long will it take to search it out in the Washington trademarks?" demanded Jayne.

"We can do it this afternoon. My man will call in, any minute now, and we'll tell him to go ahead."

"I'll take it," said Jayne.

"Good enough. If it's clear in the Trademark Division, we'll get the application on file this afternoon."

Jayne looked surprised. "You'll have to have labels made up. Then you'll have to make a bona fide sale in interstate commerce. And then have the trademark application executed by Andy Bleeker. I don't think you can do all that in three hours. And I won't pay off on a phony."

"Of course not." Patrick smiled angelically as the other left.

In the early afternoon Patrick walked across the court to the terpineol pilot plant and into the cramped dusty office of John Fast. As he stepped inside, his eyes were drawn immediately across the cubicle, beyond Fast's desk, to a large painting, in black and white, hanging on the wall behind Fast. He poised at the doorway, slackjawed, staring at this . . . thing.

Within the plain black frame were two figures, one large, and, in front, a smaller. The outlines of the larger figure seemed initially luminous, hazy, then, even as he squinted, perplexed and uneasy, the lines seemed to crystallize, and suddenly a face took form, with eyes, a mouth, and arms. The arms were reaching out, enfolding the figure in front, a man wearing a medieval velvet robe and fethered beret.

Unaccountably, Patrick shivered. His eyes dropped, and found themselves locked with those of John Fast, unquestioning, waiting.

Fast murmured, "It is an oversize reproduction of Harry Clarke's pen-and-ink drawing, the end-piece of Bayard Taylor's translation of Goethe."

"What is it?" blurted Patrick.

"Mephistopheles, taking Faust," said John Fast.

Patrick took a deep breath and got his voice under control. "Very effective." He paused. "John, I'm here to ask a favor."

Fast was silent.

"I understand you have a certain skill in the art of hypnosis."

Fast's great dark eyes washed like tides at Patrick. "That's not quite the right word. But perhaps the result is similar."

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"I'll come to the point. All this is highly confidential. Our basic terpineol patent application is in interference in the Patent Office. We intend to dissolve the interference by a motion contending that the interference count is unpatentable over the prior art. This prior art is a college thesis. The problem is, Paul Bleeker is the only one who has seen the thesis, and he can't remember anything about it. Is it possible for him to remember, under hypnosis?"

"It's possible," said Fast, "but by no means a certainty."

"But isn't it true that everyone records, somewhere on his cerebrum, everything he has ever experienced?"

"Possibly. But that doesn't necessarily mean we can remember it all. Recall is a complicated process. The theory in fashion today is the 'see-all-forget-nearly-all' theory. In this one, every bit of incoming sensation is recorded and filed away in your subconscious. But to bring it up again, you not only have to call for it, you also have to walk it out, holding it by the hand, chopping along with a mental machete to clear away all the subconscious blocks along its path. Persistence will turn up many a forgotten item in this way. But if it's quite old, there may be so many blocks that it will never be able to penetrate the conscious mind. In this case you have to get down there with it, in your far subconscious—take a good look at it, and then holler out to somebody what you see. Hypnosis is the accepted procedure. In the hands of an expert, all kinds of oddities can be turned up in this way: stimuli the subject barely had time to receive; or things, which if recalled on a conscious level, would be intolerable."

"I want you to try it on Paul Bleeker tonight."

Fast hesitated a moment. "I gather you renamed 'Neol'?"

Patrick's eyebrows arched. "Yes. How did you know?"

"It was best for your patents, and you always do what's best for your patents."

" 'Neol' was a poor trademark," said Patrick doggedly. "That was the only reason we changed."

"What is the new name?" asked Fast.

And now Patrick hesitated. He found himself unwilling to answer this question. Suddenly, he almost disliked John Fast. He shook himself. " 'Shane'," he said curtly.

Tiny iridescent lights seemed to sparkle from somewhere deep in the eyes of the other.

"Well?" demanded Patrick.

"Exquisite," murmured Fast. "I will do this thing for you. It may involve something more than hypnotism. You understand that, don't you?"

"Of course."

"No, you don't. You can't, at least not yet. But no matter. If Paul is willing, I will do it for you anyway. Since you are totally

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committed, it cannot be otherwise."

Those who have lost an infant are never, as it were, without an infant child. They are the only persons who, in one sense, retain it always.

Leigh Hunt

Andrew Bleeker swung his swivel chair slowly back and forth as he motioned to the two chairs nearest his desk.

Patrick said cheerfully, "Good afternoon, Andy."

Harvey Jayne grunted. He was not cheerful.

Bleeker's eyes flickered broodingly at Patrick's face. He had a horror of these nasty internecine arguments. Patrick beamed back, and Bleeker sighed. "I'll come to the point, Con. There seems to be some question about the way you handled Harvey's Neol Manual."

"Really? I realize I wasn't able to satisfy him completely, but I didn't think he felt strongly enough about it to take it to the head office."

"What was the problem, Con?"

Harvey rose out of his chair. "Andy, let *me* state—"

"Con?" said Bleeker quietly.

"I sort of blackmailed him, Andy. I pressured him into giving one of our secretaries a double raise, out of *his* budget. In return I got him a good trademark, made an infringement search on it, and got the trademark application on file in the Patent Office, all within four hours. He still has time to get his brochure proofs corrected and back to the printers tonight. But it isn't the Neol Manual anymore. We changed the trademark to 'Shane'."

" 'Shane'?"

"Harvey picked it out, all by himself."

"You don't say," murmured Bleeker.

"The name is all right," grumbled Jayne. "It's the trademark *application* I'm protesting. It's a fraud, a phony. Andy, you perjured yourself when you made oath that the company had used the trademark in commerce. The mark didn't even exist until a few hours ago, and I know for a fact our shipping department hasn't mailed out anything labeled 'Shane' across a state line. It has to be interstate commerce, you know. But there hasn't been any shipment at all. Not one of the packages has left the Patent Department. I just checked."

Bleeker hunched his shoulders and began to swing his chair in slow oscillations. "Con?"

"He has the facts very nearly straight, Andy, but his inference is wrong. There was no fraud. When you signed the declaration, you did not commit perjury."

"But doesn't the form say that the goods have been shipped in interstate commerce? Didn't I sign something to that effect?"

"The trademark application simply asks for the date of first use in commerce. The statute defines commerce as that commerce regulated by Congress. *That's* been set-

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tled for over a hundred and fifty years. Congress controls commerce between the states and territories, commerce between the United States and foreign countries, and commerce with the Indian tribes."

"But we didn't ship in interstate commerce," said Jayne.

"That's right," said Patrick.

"Nor in foreign commerce?" asked Bleeker.

"No, Andy."

"That leaves—"

"The Indians," said Patrick.

"Apaches," said Jayne acidly, "disguised as patent attorneys."

"Not exactly Apaches, Harvey," said Patrick. "But we do have a lawful representative of the Sioux tribe, duly accredited to the Bureau of Indian Affairs in Washington. Commerce is with the Sioux, through their representative. A sale to her is a sale to the tribe. If you checked on the packages, you probably noticed that one was on her desk."

"*Her* desk," rasped Jayne. "This . . . Indian . . . *you mean*—"

"Miss Green Willow, late of the Sioux reservation? Of course. Drives a hard bargain. We finally settled on fifteen cents for the gallon jug of terpineol. Her people back in Wyoming will make it into soap for the tourists."

Bleeker seemed suddenly to have problems with his face, and this was detectable largely by the efforts he was trying to freeze his mouth in an expression of polite inquiry. Then his cheeks turned crimson, his stomach jumped, and he hastily swiveled his chair away from his visitors.

There was a long silence. Jayne looked from Bleeker's back to Patrick's earnest innocence. He was bewildered.

Finally Bleeker's chair swung around again. His eyes looked watery, but his voice was under control. "Harvey, can't we be satisfied to leave it this way?"

Jayne stood up. "Whatever you say, Andy." He refused to look at Patrick.

Bleeker smiled. "Well, gentlemen."

Jayne walked stiffly out the door. Patrick started to follow.

"Just a minute, Con," said Bleeker. He motioned Patrick back inside. "Close the door."

"Yes, Andy?"

Bleeker grinned. "One day, Con, they'll get you. They'll nail you to the wall. They'll hang you up by the thumbs. You have got to stop this. Is Willow really an Indian?"

"Certainly, she is." Patrick was plaintive. "Doesn't *any*body trust me? The arrangement is legal."

"Of course, of course," soothed Bleeker. "I was just thinking, how convenient to have your own Indian when you need a quick trademark registration. It's like having a notary public in your office."

"All our secretaries are notaries," said Patrick, puzzled.

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Bleeker sighed. "Of course. They would be. I stepped into that one, didn't I?"

"What?"

"Never mind." Bleeker's chair began it's slow rhythm again. "How's that chess player getting along? Alec Cord?"

"He made second place in the D. C. Annual."

"He's still not in your league, though, Con. Nobody, absolutely nobody, can equal your brand of chess."

Patrick squirmed. "I don't even know the moves, Andy."

"And your contract man, Sullivan? Can he write as good a contract as you?"

"Much better," said Patrick.

"Did he write the contract that bound you to the Hope Patent Department?"

"What do you mean, Andy?"

"Oh, never mind. I don't know what I mean. I don't think I'll ever understand you patent fellows. Take Paul. Chemists become lawyers; lawyers never become chemists. Paul can't—or won't—explain it. There's probably something profound in this, but I've never been able to unravel it. Does it mean chemists have the intellect and energy to rise to advocacy, but that lawyers could never rise further into the realm of science? Or does it mean that the law is the best of all professions, that once in the law, other disciplines are attainted?"

Bleeker's chair began to swivel slowly again. Patrick knew what was coming. He got everything under control.

"How *is* Paul the patent lawyer?" asked Bleeker.

"A competent man," said Patrick carefully. "We're glad you sent him around to us."

Bleeker was almost defensive. "You know why I did it, Con. There's nobody else in the company I could trust to make him toe the mark. Really make him. You know what I mean."

"Sure, Andy, I know. He's a bright kid. I would have hired him anyway. Quit worrying about him. Just let him do a good job, day by day. Same as I did when I worked for you."

"I worked you hard, Con. Make Paul work hard."

"He works hard, Andy."

"And there's one more thing, Con. You switched trademarks. Neol to . . . Shane, you said?"

"That's right. Neol is a poor trademark. Shane is better."

"That's anoter thing Jayne is going to hold against you, Con. Switching marks on his cherished Manual."

"It isn't really that bad, Andy." Patrick marveled at the older man's technique. At no time during the conversation had Bleeker asked Patrick whether the Patent Department was going to approve the terpineol plant, nor in fact had he asked him anything at all about the terpineol patent situation, even

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though they both knew this was vital to Bleeker's future in the company. And yet the questions, and the pressure were there, all the same, and the questions were being asked by their very obvious omission. Patrick decided to meet the matter with directness. He said simply: "We haven't completely resolved the patent problem, Andy. But we certainly hope to have the answer for you well before the Board meeting Monday morning. With luck, we may even have it tonight."

Bleeker murmured absently, "That's fine, Con."

Patrick started to get up, but Bleeker stopped him with a gesture.

"Shane," said Bleeker thoughtfully. "Very curious." His eyes became contemplative. "Perhaps you never realized it, Con, but we regarded your wife as an outstanding scientist. *You* were wise, however, to take up law in night school."

Patrick nodded, wondering.

"We got interested in her," continued Bleeker, "when she was just finishing up her master's degree at State. I think we still have her thesis around somewhere. Old Rohberg made a special trip to drive her up for her interview. She was so pretty, I made her an offer on the spot. My only error was in turning her over to you for the standard lab tour. You louse."

Patrick smiled, his face warmly reminiscent.

Bleeker studied the other man carefully. "What was the name of your little girl?"

"Shan."

"Odd name."

"Lilas picked it. It's short for '*chandelle*', French for 'candle'. Lilas was French, you know. Lilas Blanc. White lilac. And Shan was our little candle. The wallpaper in the nursery was designed with a candle print. The lights above her crib were artificial candles. We painted fluorescent candles inside her crib. She would pat them every night before I tucked her in."

Bleeker cleared his throat. "Con, sooner or later somebody's going to tell Harvey Jayne that you renamed Neol after your baby daughter."

Patrick didn't get it. He stared back, stupidly. "After . . . Shan?"

"Well, didn't you? Shan . . . Shane . . . ?"

Patrick felt his insides collapsing. "But I didn't . . ." he blurted. "It didn't occur to me." Then his mouth twisted into a lopsided smile. "At least, consciously. But there it is, isn't it? So maybe you're right, Andy. I really walked into that one. There I was, telling Cord that Jayne's mental blocks wouldn't let him see why he liked Shane. The same rule applied to me, although I don't want my daughter's name on terpineol, plastered on tank cars, warehouses, stationery, magazine ads. Too late now. Botched the whole thing."

Bleeker regarded him gravely.

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"Con, how long has it been now, since the . . . accident?"

"Three years."

"You're still a young man, Con. Relatively speaking. Our young ladies think it's about time you got back into circulation."

"You might be right, Andy."

Bleeker coughed. "You're just being agreeable to avoid an argument. Believe me, Con, it's one thing to remember the dead. It's an altogether different thing to have your every waking thought controlled by your memories. You ought to get away from that place."

Patrick was shocked. "Move? From the garden? The house? It has our bedroom. Shan's room. How about Lilas? How about Shan? They're *buried* there. Their ashes—"

"Ashes?"

"They were cremated. Lilas wanted it that way. I spread the ashes in the lilacs."

The older man looked at him with compassion. "Then release *them*, Con. *Let them go!*"

"I *can't*, Andy." Patrick's face twisted. "They're all I have. Can't you understand?"

"I guess I do, Con. I guess I do. I'm sorry. None of my business, really."

On this night of all nights in the year,
Ah, what demon has tempted me here?
Edgar Allan Poe, *Ulalume.*

The evening was warm, and along about ten o'clock the party drifted down into the garden.

Patrick, as usual drinking only beer, was, for all practical purposes, cold sober, a condition that enhanced rather than alleviated an unexplainable and growing sense of anxiety. The nearness of the lilacs, usually a thing of nostalgic pleasure, somehow contributed to his edginess. He was startled to note that several clusters were on the verge of opening. He started to call Cord's attention to this, then thought better of it. And then he wondered, "Why didn't I? What's the matter with me? What's going on?"

The group was in the arbor now. He would have to get on with it, the reason why they were all here. Paul Bleeker and John Fast knew what they were supposed to do. All he had to do was to ask them to start. Paul was already seated at the stone table. As he watched, Paul pulled the table drawer out in an idle exploratory gesture.

"My notes for a patent law article I started . . . a couple of years ago," said Patrick wryly. "I just can't seem to get back to it."

"Then perhaps you should be thankful," said Fast.

"What do you mean?"

"A professional man writes for a variety of reasons," said Fast. "I'm working now on my 'Encyclopedia of Oxidative Reactions.' I know why I'm writing it. And I know why

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you're not writing, Con. It's because life has been kind to you. Let it stay that way."

Paul Bleeker broke in. "You say a professional man writes for a variety of reasons, John. Name one. Why do you write?"

Fast's dark eyes turned on Paul Bleeker. "You have heard it said, a man owes a debt to his profession. This may be true. But no professional man pays his debt by writing for the profession. If he is an independent, say a consulting engineer, or a partner in a law firm, or a history professor in a big university, he publishes because it's part of his job to advertise himself and his establishment. There's very little money in it *per se*. If he's a rising young man in a corporate research or corporate law department, he writes for the reputation. It helps him move up. If his own company doesn't recognize him, their competitors will. But if he's already at the top of his department in his company, he has none of these incentives. But he doesn't need them. If such a man writes, he has behind him the strongest force known to the human mind."

"And what might that be?"

"Guilt," said Fast quietly. "He writes to hide from the things he has done in the name of his profession. It gives him a protective cocoon to burrow into. A smoke screen to hide behind."

"In the name of the patent system," said Patrick firmly, "I've committed every crime known to man. And still I can't get started."

"You've done very little, really," said Fast in his nearly inaudible monotone. "But when you really have done something, you'll know it. You won't have to wonder or conjecture. Then, you'll begin to write. It'll come instantly. No floundering. No lost motion. You'll leap to it. The words, pages, and chapters will pour out in a torrent. It will be your salvation, your sure escape."

They stared at him. Cord laughed nervously. "So why do *you* write, John? What is your unspeakable crime?"

Fast turned his great black eyes on the other, almost unseeing. "I cannot tell you, my friend. And you wouldn't believe me if I did tell you. Anyhow, it can never happen to you." He looked away to Patrick. "But to you, Con, it could happen. And it could happen soon. Tonight. In this place."

Patrick laughed shakily. "Well, now, John. You know how careful I am. Nothing is going to happen to me. It's spare time I need to start writing, not penitence."

Fast looked at him gravely. "You do not weep. You smile. Before the Nazarene called Lazarus up, He wept." His toneless eyes seemed almost sad. "How can I explain this to you. Then let it be done. I have placed the Shane Manual at the five angles of the pentagram. I think they are waiting."

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"They?" stammered Patrick. "Oh yes, of course. The fellows. Perhaps we should begin."

"What's that smell?" called Sullivan.

"It's a terpineol," said Fast, sniffing a moment. "Like 'Shane'. Maybe a mixture of alpha and gamma terpineols." He snapped his fingers. "Of course!"

"Of course . . . *what?*" said Patrick. His voice was under control, but he felt his armpits sweating copiously.

"The mixture . . . very correctly balanced, I'd say. Just right for synthetic oil of lilac."

Patrick was struck dumb.

"That's very odd," said Sullivan. "Con's lilacs are not open yet."

"The odor must be coming from somewhere."

"Maybe we're all tired," said Cord. "Breeds hallucinations, you know."

Patrick looked at him in wonder.

"It's hard to convince anybody that odor can have a supra-chemical source," said Fast.

Cord laughed incredulously. "You mean there's something out there that is synthesizing oil of lilac . . . or Shane . . . or whatever it is?"

"We are so accustomed to thinking of the impact of odors *on* people that we don't think too much about the creation of odors *by* people. Actually, of course, everyone has his characteristic scent, and it's generally not unpleasant, at least under conditions of reasonable cleanliness. In this, man is not really basically different from the other animals. But man—or rather, a certain few extraordinary people—seem to have the ability, quite possibly involuntary, of evoking odors that could not possibly have come from the human sweat gland."

"Evoking?" said Sullivan.

"No other word seems to describe the phenomenon. Chemically speaking, in the sense of detectable air-borne molecules dissolving in the olfactory mucosa, the presence of odor is indeed arguable. On the other hand, in the strictly neuro-psychic sense, that an 'odor' response has been received in the cerebrum, there can be no real doubt. The phenomenon has been reported and corroborated by entire groups. The 'odor of sanctity' for certain saints and mystics seems to fall in this category. Thomas Aquinas radiated the scent of male frankincense. Saint John of the Cross had a strong odor of lilies. When the tomb of Saint Theresa of Avila—the 'great' Theresa—was opened in 1583, the scent of violets gushed out. And more recently, the odor of roses has been associated with Saint Theresa of Lisieux—the 'little' Theresa." He looked at Patrick. "I think—everyone is ready."

Patrick wiped his face with his handkerchief. "Go ahead," he said hoarsely.

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Ma chandelle est morte . . .

French Nursery Rhyme.

Paul Bleeker was seated in the iron chair at the stone table. John Fast faced him, from one side. The others stood behind Paul.

"You are in a long dark tunnel," said John Fast quietly. "Just now everything is pitch black. But your eyes are beginning to adjust."

There was absolute silence. Then Fast's voice droned on. "In a little while, far ahead of you, you will be able to see the tunnel opening. It will be a tiny disk of light. When you see this little light, I want you to nod your head gently."

From far down stream drifted the plaintive call of a whippoorwill.

Paul Bleeker's eyes were heavy, glazed. His stony slump in the iron chair was broken only by his slow rhythmic breathing.

"You now see the little light—the mouth of the tunnel," monotoned Patrick. "Nod your head."

"Candle," whispered Paul.

Patrick started, then recovered himself instantly.

Fast picked it up smoothly. "Watch the candle," he said. "Soon it will start to move toward you. It is beginning to move."

"Closer," murmured Paul.

In a flash of feverish ingenuity Patrick stepped forward, seized the wine bottle and its stub of candle from the stone table, struck his lighter, then lit the candle. He replaced the bottle on the table front. The flame wavered a moment, then flickered up. Patrick stole a glance at Paul's face. It was frozen, impassive.

Fast continued gravely: "Soon you will have enough light to see that you are sitting at your desk in the library. In a moment you will see the piles of books on the tables near by. There are several books on your desk. There's a big book just in front of you. Now the candle is close enough."

"Close," murmured Paul.

The hair on Patrick's scalp was rising. The odor of lilacs was stifling. And he then noticed that the lilacs were opening, all around him. He somehow realized that lilacs do not bloom in minutes. It was a botanical impossibility. He could almost hear the tender calyxes folding back.

Fast continued. "You are opening the front cover. You are looking at the title page. It is typewritten. It is a thesis. You are able to read everything. You can see the name clearly. The name of the student is—"

Patrick heard gasps behind him, and his eyes suddenly came into focus. Beyond Paul, on the far edge of the stone table, beyond the candle, he saw the two figures. They were wavering, silent, indistinct, but they were there. The larger one would just about reach his chin. The eyes of the small one came barely to the table edge.

He wanted to scream, but nothing would come out of his throat.

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The taller figure was leaning over the table towards Paul, and she was holding something . . . an open book. But neither figure was looking at Paul. Both of them were looking at him. He knew them.

In this frozen moment his nose twitched. The scent of lilacs wavered, then was suddenly smothered by something sharp, acrid. Patrick recognized it, without thinking. It was ozone. And as if in confirmation of its olfactory trademark, a luminous . . . thing . . . was taking shape behind the two figures. Suddenly it acquired a face, then eyes. Then arms, reaching out, encircling.

Patrick had a horrid, instantaneous flash of recognition. The portrait in John Fast's office. Mephistopheles taking Faust.

"The name of the student is Lilas Blanc," said Paul Bleeker metallically. "State U—"

"Oh, God, *NO!*" screamed Patrick.

The candle blew out instantly. Paul struggled in his chair. "Hey, what . . . where?" He knocked the chair over getting up.

The voices rose up around Patrick in the darkness.

He dropped in a groaning heap on the grass. "Lilas, Shan, forgive me. I didn't know." But he must have known. All along.

And now his mind began to swing like a pendulum, faster and faster, finally oscillating in a weird rhythm of patterns so bewildering and contradictory that he could hardly follow them. His mind said to him, they escaped. It said to him, they did not escape. It said to him, they were there. It said, nothing was there. And then it started again. His throat constricted, his teeth bit the turf, and by brazen command his thoughts slowed their wounded flailing. He ceased to ask, to wonder. And finally he refused to think at all.

He heard Cord's firm voice. Somebody found the light switch. There were querulous whispers. And then there was something on his back. Some of them had dropped their jackets on him. A man's hand lingered briefly on his shoulder. It was a gentle, even affectionate gesture, and he recognized the touch as that of a man accustomed to tucking small children into their beds at night. He had used the same touch, many times, and long ago.

And now the sound of footsteps fading. And then, motors starting. And finally nothing, just the splash of the little falls, the crickets, and far away, the whippoorwill.

He did not want to move. He wanted only never to have been born.

He closed his eyes, and sleep locked him in.

I hold every man a debtor to his profession; from the which, as men, of course do seek to receive countenance and profit, so ought they

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of duty to endeavor themselves by way of amends to be a help and ornament thereunto.

Francis Bacon, Preface to Maxims of the Law.

It was early morning, and with the pink of dawn on his cheek, waking was instantaneous. His mind was clear and serene as he threw the jackets aside and got to his feet. He rubbed his eyes, stretched with enormous gusto, and walked over to the lily pond. A green frog was sitting on a pad of the yellow lotus, but jumped in as Patrick bent over to splash water on his face. He dried his face on his shirttail, which was flopping out over his belt.

The sun was now barely over the little hill, and a shaft of light was slicing into the pond. Patrick considered this phenomenon briefly, then peered into the bottom of the pool for the refracted beam. There was some kind of rule of optics—law of sines. Somebody's law. Check into it. Meanwhile, there was work to be done. Important work.

He walked into the arbor, picked up the overturned iron chair, sat down at the stone table, and pulled a pencil and paper pad out of the drawer. After a moment, he began to write; slowly, at first.

"Ex parte Gulliksen revisited. The typewritten college thesis as a prior printed publication. This decision from the Patent Office Board of Appeals in . . ."

Then faster and faster. ". . . essential, of course, that the thesis be available to the public. This requirement is satisfied by . . ."

Now, he was writing furiously, and the pages were accumulating.

He was going to make it. Just a question of staying with it, now, and it would give him complete protection. No need to worry about what to work on *after* this article, either. He knew he could turn out a text. No trouble at all. Or even an encyclopedia. Patrick "Chemical Patent Practice," four volumes. He could see it now. Red vinyl covers, gilt lettering.

The stack of sheets torn from his pad was now quite bulky. He pushed the pile to the table corner, and in so doing knocked the bottle and candle unheeding to the ground and into the withering lilacs. Already he could visualize his "Preface to the First Edition." It should be something special, based perhaps on a precisely apt quotation. What was that thing from Bacon? He frowned, puzzled. No. There was something not quite right about *that.* But never mind. Plenty of others. Somehow, somewhere, there would be a word for him. ■

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Minds Meet

There are great difficulties establishing any sort of meeting of minds with a truly alien people. And one of the greatest difficulties is the realization that it is very difficult!

PAUL ASH

Kelly Freas

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The party was roaring up to its climax, and Lawrence Day, not being one of the group who considered a celebration incomplete until they had smashed the furniture, stuck a bottle in his pocket for future reference and prepared to go softly away. There was no reason in the world—*this* world—why the furniture should not be broken; it was shaped to fit Terrans, and the Lor'yi would have no use for it; but Lawrence was not in the mood.

On the way to the door, anthropodynamic currents brought him up against somebody who failed to sidestep.

"Hello, Day. Aren't you enjoying yourself? What's wrong?"

Lawrence, blinking, discovered that he was wedged up against the Project Director.

"Nothing wrong, sir. Except—'S only *half* a party, you know."

"Half?"

"Joint enterprise. Joint success . . . but only *half* a party, right now."

"Oh, I see." Lawrence's vision was slightly clouded, but behind the haze the Director seemed to be smiling. "Somehow I can't see the Lor'yi at a party, you know."

The pattern of forces in the neighborhood, changing suddenly, carried them apart. Lawrence escaped through the nearest door, shaking his head.

" 'S half the trouble," he murmured. "Neither can I."

The Contact Room was empty. Lawrence dropped into the familiar chair in front of the visionscreen, refilled his tankard, and put it down to wait for the chiller to do its job.

Seven years, he thought. For seven years Terran and Lor'yi scientists had worked together, almost hand-in-tentacle, trying laboriously to achieve a fusion of two scientific traditions; with, in the end, rather staggering success. But now that Project InterCom was finished; now that a method of transmitting messages instantaneously over interstellar distances was an accomplished fact, with theory confirmed by experiment and all the necessary installations on their way to completion on forty-three Terran planets and upwards of two dozen colonized by the Lor'yi, what happened? The Terran half of the Project team, packed and ready to leave, was celebrating enthusiastically; alone . . .

Joint merry-making would have needed careful arranging; one couldn't suggest that the Lor'yi drop in, nothing formal, for a farewell drink. They were chlorine-breathers, for one thing, and few of them could take more than ten minutes in a pressure-suit without becoming unhappy. That was why the Project had been set up with an air-tight Terran base on a Lor'yi planet, instead of the other way around. But, in seven years Project InterCom's engineers had learned to take that sort of problem in their stride. If you could work with a be-

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ing, you could find a way to relax in his company; always supposing relaxation was something *he* understood.

Nobody else, Lawrence thought, hoisting his boots onto the ledge below the screen, *sees how sad it all is . . .*

When Lawrence Day joined the InterStellar Exploration Service at the age of fifteen—just over half a lifetime ago—the secret motivating force behind his choice of profession was a mental picture of a greenish, pop-eyed edition of himself squatting on the opposite side of a camp fire, with one finger tapping its—greenish—chest. But in addition to the stars in his eyes, young Lawrence had feet well planted on the ground; in other words, a good grasp of the many complications that could come up when one tried to put over even such a simple concept as "Me—friend" to beings whose aural, vocal and social characteristics were different from one's own. To be ready to cope with all the possible difficulties, those still hypothetical, as well as those that the Service had already met, called for an immense amount of training in a wide range of fields. Lawrence, successfully absorbing it, finally found himself in the Alien Contact Division, which was small—since the known intelligent races could be counted on the fingers of one hand—but very select.

After eleven years of training and brief try-out missions he had been appointed Contact Officer to Project InterCom. Every day for seven years he had sat in this chair, with K'k'riscor's face on the screen opposite; and for six, eight, sometimes ten hours a day they had taken each communication block that arose between the scientists of the two races, and worked it over between them until both sides agreed that they understood.

No, Lawrence thought, *it wasn't understanding, only communication. A set of symbols that mean something to us and something to them and that can be usefully manipulated by both sides. But was it ever the* same *something? I just don't know.*

Seven years of impeccable cooperation with never a cross word. Not even after the memorable confusion in the first year of all, when a six-hour exploration of meteorological phenomena -and their effects on perception were finally traced to some Terran's observation, in the presence of a Lor'yi colleague, that it was going to be a fine day. Not even when a misunderstanding as to which was the business end of a Terran handlaser had led to another Lor'yi's cutting right through one pole of the metal scaffolding over which K'k'riscor draped himself in lieu of a chair. Never a cross word.

Never a kind one, either. Do the Lor'yi have any idea of kindness,

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Lawrence wondered; or do they manage without? Can K'k'riscor really be such an animated computer as he seems? I suppose, if so, the egg-born bastard thinks *I*—

Oops . . . Lawrence pulled himself up. To use alien physiological characteristics as a term of reproach was *out*, even when talking to himself. Once allow that kind of thought to form, and in some moment of stress it would pop out as words; with incalculable effect.

There was no way of telling, in advance, *what* would offend beings of another race. Short of actual brick-dropping, accidental or by way of deliberate experiment, one could only make guesses, based on the topics *they* seemed to regard as taboo.

Going purely by the things he *didn't* talk about, K'k'riscor, at least, seemed to have the delicate susceptibilities of one descended from a long line of maiden aunts. So far as Lawrence could remember, the Lor'yi had never made a spontaneous reference to any of the physiological differences between their races (except as regards chlorine-versus oxygen-breathing, a topic which came up over every joint enterprise); or to the processes of reproduction in either race; or to any political or even purely social matter. If some reference was essential in the process of establishing a translation, K'k'riscor would go all round Robin Hood's barn, with Lawrence tagging behind, to dodge a direct statement. (Naturally Lawrence had to do the same, when the necessity arose from *his* side of the visionscreen.)

It occurred suddenly to the Contact Officer that for all he knew K'k'riscor might actually *be* a maiden aunt—which just showed the sort of footing they were on.

Well, it was all very sad, but it was too late to do anything about it. Far, far too late. Frost had formed on the outside of the tankard. Lawrence lifted it towards the screen.

"Here's to you, K'k'riscor," he murmured, "and may I never run into your like again."

Beyond his boot soles the screen came suddenly to life.

"Greetings, Lawrence," came from the speaker in the Lor'yi's gravelly purr. "Self not recently knowing you presently in place."

For some reason Lawrence did not choke. Staring at the blank black-and-white design of K'k'riscor's face, he put the tankard down without spilling a drop.

Seven years . . . For seven years he had dropped into this chair and switched the audio and visual apparatus on, and for at least six and a half of those years the second process had been performed as automatically as the first. Evidently he had just done it again.

It was no use staring, Lawrence thought; continuing to do so. No Terran ever yet learned anything from a Lor'yi face. The wrap-

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around eyes might be first-class as organs of vision, but they were no more expressive than two irregular strips of appliqued black velvet. The only other distinct organ on the domelike head, the "mouth"—a trumpet-shaped outlet for the vocal organs—was mobile, but it merely pointed K'k'riscor's voice towards the person he was addressing. Otherwise, his face was covered with the same sparse, staring, off-white bristles as the blobby little body—continuous with the head-no-neck—and the four stiffly-flexible tentacles. Somebody had once compared the Lor'yi, in general, to damaged starfish walking edge-on. Substitute brittle-stars for ordinary starfish and it was a good description; even though the Project Director, determined on a correct attitude towards the Lor'yi, had slapped the speaker down for it.

"Greetings, K'k'riscor," said Lawrence gloomily.

"Query: Your first section namely here's-to-you-K'k'riscor signifies what."

Stars . . . People who thought that this was an easy assignment for a Contact Officer, because the basic language was "simplified" Terran—about half the sounds of Lor'yi speech being outside the human vocal range—should try to cope with this sort of thing. "Simplified" Terran had a large vocabulary, rich in technical terms, but homophones, synonyms and other foreseeable sources of confusion, including inconsistencies of grammar, had been carefully weeded out. All the Lor'yi on the Project team spoke it reasonably well; difficulties arose when (a) a specifically Lor'yi concept, not provided for in the vocabulary, had to be dealt with—the sort of thing for which Contact Officers were trained; or (b) some Terran fathead carelessly slipped into accustomed idioms in Lor'yi hearing; the kind of thing to which Contact Officers were quite accustomed, but felt entitled to resent.

Unless, of course, they had done it themselves.

Lawrence considered turning off the apparatus. He also considered putting his foot through the screen. He was *off duty,* dammit . . . Before his muscles could act on either notion, the large part of his brain, which was reserved for professional uses, had gone into action and the answer had started to come.

"Expression 'here's-to-you'," he heard himself saying, "signifies desire for welfare of subject named."

"Expression not logically concerning welfare," K'k'riscor said.

Is he calling me a liar? wondered Lawrence, startled. Before he could put this question into "simplified" Terran, the Lor'yi had started off on another tack.

"Query: Your first utterance your second section namely may I never run into your like again signifies not liking self."

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Lawrence's jaw loosened at the hinge. *"Stars!"* he said helplessly. "Involuntary utterance, disregard . . ." *Now what?* He did not, he realized, at all want to improve his understanding of the Lor'yi by seeing how one of them reacted to insult. Did K'k'riscor recognize that concept? If he could just get the discussion on to semantics . . .

"Self not knowing," he said carefully, "whether concept not-liking signifies to your race same-as concept not-liking signifies to my race."

"Concept not-liking signifies to my race desire object stopping, going-away, extinct," answered K'k'riscor promptly. "Concept not-liking signifies to my race also physiological events, namely involuntary spasm in tentacle tip, involuntary wave-movement of hair." The tip of one upper tentacle curled suddenly, and relaxed.

"Query: Concept not-liking signifies to your race same-as concept not-liking signifies to my race," K'k'riscor added.

"Concept not-liking signifies to my race same-as to yours," agreed Lawrence helplessly. "However differing physiological events."

"Noted your first utterance your first section signifies desire for welfare of self, your first utterance your second section signifies not-liking self. Query inconsistent."

"No! Dammit . . . Involuntary utterance." Lawrence, looking into his tankard for inspiration, unexpectedly got it. "My first utterance, first and second sections *together* belonging in class of expressions, not logically constructed, Terrans by-custom uttering when drinking. Disregard. *Before* drinking—" about to say "together," Lawrence saw a possible pitfall and substituted—"alcohol. Ethyl alcohol. Dilute . . ."

"Wrrgszrrt!" K'k'riscor's upper tentacles, for fully two thirds of their length, snapped back into tight watch-spring coils.

"Involuntary utterance," said the Lor'yi after a pause. His tentacles slowly uncurled. "Statement, ethyl alcohol toxic to Lor'yi metabolism. Query: Ethyl alcohol not toxic to Terran metabolism?"

"Oh, it is." Relieved to have got off the subject of "not-liking," Lawrence took a pull at the tankard. "Statement, ethyl alcohol in not-small quantities very toxic to Terran metabolism. Small quantities slightly toxic."

The tips of the Lor'yi's tentacles twitched restlessly.

"Query: Terrans voluntarily ingesting toxic substances. Query cause."

An idea was building up in the depths of Lawrence's mind.

"Ingestion of slightly toxic substances produces . . . er . . . physiological events. Terrans liking—"

"Awurrt!" The Lor'yi were never sleek—the uneven off-white fur had always, to Terran eyes, an indefinably moth-eaten appearance; but until this moment K'k'riscor's

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had seemed relatively smooth. Now it was moving; uneasy little ripples had appeared in it, starting apparently at random spots and spreading in circles. The effect made Lawrence slightly queasy, but—

Involuntary spasm of tentacle-tip, involuntary wavemovement of hair. He was really on to something.

"Query: Lor'yi not-liking . . ." Lawrence leaned forward tensely. The Project Director would have his ears if he ever found out about this session, but right now the Contact Officer didn't care.

"Lor'yi not liking," said K'k'riscor rapidly. "Lor'yi extreme not liking. Terrans . . ." He halted, baffled. "Awwurrtt!"

"The word you want is 'Filthy,' I imagine."

"Filthy!"

"Also, 'Disgusting.'"

"Disssguzzting!"

"Quite so." Lawrence swallowed another mouthful. "Well, if you don't . . . disregard. Your statement Lor'yi not ingesting substances toxic to Lor'yi metabolism. Well, then—Query: What did *you* get high on, K'k'riscor my friend?"

The presence of the Project Director was having an inhibitory effect. Not much; but enough to excuse him from further attendance. His sense of duty satisfied, he edged his way to the door and withdrew.

He didn't want to go to bed just yet. Items which represented obvious potential danger, in view of the present state of disinhibition among his staff—such as the air-lock mechanisms and the power generators—had been locked in their shields before the revels got under way, and the Director's secretary, a teetotaler, was sleeping with them under her pillow, behind a locked soundproofed door. But it wouldn't do to underrate the ingenuity of his team; they could find ways to get into dangerous mischief even now.

Wanting a few minutes of peace, the Director opened the soundproofed door of the Contact Room.

"Don't!" Lawrence yelled. "It's revolting! I mean it's disgusting! Send them away!"

The visionscreen was not in line with the door. The Director had an edge-on view of movement taking place on it, but his attention was centered on Lawrence; doubled over in his chair, hands to his eyes.

"Captain Day!"

Lawrence lurched round in his swivel chair and almost fell off.

"Are you insane?" demanded the Director.

"No. No, really, sir. I was just—"

"Come away from that screen!"

Lawrence wavered. The chair wobbled on its pedestal. "Sir, this is something important. I'll explain—"

"Peep-bo!" came a falsetto voice from the doorway. "Lawrence, you blackleg, what—*Stars!* Sorry, sir—"

The Director turned an icy stare on the newcomer.

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"Williams. I take it you are not alone?"

"No, sir." Tiny Williams stiffened to attention.

"I wish you and your companions to remove Captain Day and sober him up—fast."

Tiny blinked, once.

"Can do, sir."

He beckoned. Three other large men entered and made for Lawrence in a purposeful group.

"Stop it!" Lawrence, who was no weakling, hung on to the chair with both hands, twining his legs round the support. "Important conversation—*important,* you louts! First *real* contact. Sir, tell them to stop. I've got to—"

"Query Terrans attempting tickle-dance," said the speaker unit in a booming growl—evidently K'k'riscor had turned up the volume on his mike. "Statement Lawrence not liking. Stop. Going away. Extinct. Awurrt!"

"Look, Lawrence, you heard what the man said—"

"Wait!" The Project Director hitched his jaw back into place. "*What* was that? Er . . . Request repeat."

Louder, if anything, K'k'riscor repeated his remarks.

Tiny Williams uttered a complicated oath.

"Williams, you four can go," the Project Director said. "I shall investigate. Don't mention this to anyone. You understand?"

The four nodded, and went.

The Director said,*"Now!"*

"Well . . ." Lawrence slapped at his rumpled clothes. "Well, sir, K'k'riscor and I were . . . just talking, that's all. A farewell chat."

"Then why were you— No. Wait. What's a *tickle-dance*?"

"Dissguzzting!" boomed the speaker.

Lawrence winced. "Request lower volume, K'k'riscor. You see, sir, the Lor'yi are having a party, too. They don't ingest alcohol, or other intoxicants—"

"Filthy!"

"But they get . . . well, 'high' . . . through their sense of touch. When they really want to have a ball they all get together in one writhing bunch and rub against each other—all over." Lawrence swallowed violently. "Like a knot of bristly worms."

"Day, do I have to remind you—"

"No, sir. I know all about controlling my reactions to alien appearance; not applying Terran standards of behavior; all that—doctrine. It's sound, but it's a hell of a strain to live up to. Being upset by certain visual stimuli isn't a matter of reason, it's a physiological reaction, more or less. You can control it, but the strain's *there*—"

"Captain Day, I understand that. I make allowances. But that . . . that exhibition I happened upon—"

"No, sir, you *don't* understand. The point is, the *Lor'yi* feel it, too. They know all about it. K'k'riscor! Request repeat your"—Lawrence

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counted up hastily in his mind, an exercise in which he had become adept—"Seventeenth utterance."

"Query: Terran Director forbidding statement Terrans not liking Lor'yi, same as Lor'yi Director forbidding statement Lor'yi not liking Terrans."

"There," said Lawrence proudly. "You see?"

"No. I don't. See *what?*"

"Well . . ." Hastily Lawrence sorted out his ideas. "*We* were all forbidden to speak of anything that might upset the Lor'yi. We didn't know what that might be, so we had to cut out an awful lot of subjects. All the things about them that struck us as peculiar, or distasteful, and everything they might think of as taboo. Sex, or . . . or hatching, or social customs, or . . . you know the list. We were told it was O.K. to open up on any topic if they started it first; but they never did. We thought they must be a prissy-mouthed bunch. But actually they had the same idea we did. They were being careful in case—"

"Query: Prissy-mouthed signifies what?" K'k'riscor asked. Lawrence ignored him.

"The point is, sir, watching words all the time got to be a strain—on both sides. It was necessary, of course. People can't co-operate if

IN TIMES TO COME Next month we have a cover by Jack Schoenherr illustrating an article, "Giant Meteor Impact," by J. E. Enever, a new English contributor. The cover's a dilly—it's a shame it isn't economically possible to print it up without type.

Enever's article is even more of a dilly. It's a careful analysis, with mathematical computation of energy quantities involved, of what happens when a meteor three kilometers in diameter and one kilometer thick strikes Earth.

Remember, first, that this sort of thing has happened repeatedly—dozens of times. Since Earth is three-quarters water surface, most of them have left no visible traces. But this is the first time I've seen an analysis of what would happen—or did happen!—when a Big One struck the ocean.

It's much more disastrous than you'd think!

Enever has, incidentally, a note for would-be meteor miners. He suggests his hypothetical lump of nickel iron is rotating slowly—about once every three or four minutes. The *rotational kinetic energy alone* then computes to about the destructive potential of a 2.5 megaton hydrogen bomb.

That, of course, is completely meaningless when the Big One actually hits. If a hydrogen bomb exploded on a mousetrap, would it make any difference whether the mousetrap spring was cocked or not? *The Editor*

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they keep getting offended, and however tolerant one tries to be, there *are* things . . . well, like the tickle-dance K'k'riscor showed me. And *he* thinks it's pretty terrible to get fun out of deliberately upsetting one's metabolism—"

"Filthy!" said K'k'riscor.

"The point is, sir, we can *say* so; to each other; and understand one another's point of view. His habits are right for him, and mine for me, but we would *not* care to swap them. If one of us were to harp on that point, the other might get annoyed; but just this once, we discovered we could afford to let our hair down. You see?"

The Director, with an expression of extreme sagacity, opened his mouth; looked suddenly doubtful, and closed it once more. Abruptly a babble of Lor'yi speech shot from the speaker. A jumbled mass—four or five individuals at least, entwined in a many-tentacled knot—rolled across the screen and engulfed K'k'riscor.

"Good-by, Lawrence!" yelled the Lor'yi as the orgiastic squirmings hid him from view.

"Good . . . Good-by, K'k'riscor." Closing his eyes, Lawrence groped hurriedly for the switch; opened them, as the screen went blank, and reached for his bottle.

"If my ingestion of alcohol affects K'k'riscor the way his type of stimulant affects me," he said, "he'll need a little something right now. How about you, sir?"

"No, thank you." The Director was looking a trifle dazed. "Are you trying to tell me, Day, that our precautions were unnecessary—that we could have talked freely to the Lor'yi about . . . well, the differences between us, and our reactions to those differences?"

"No, sir, I'm not. A bunch of *Terrans* can't do that very freely, among themselves. I'm not sure that 'concept *disgusting*' signifies to K'k'riscor exactly what it does to me, but it wouldn't help to let that word into the Project vocabulary. Maybe, if there's another joint Project, my successor can get together with K'k'riscor's and agree to cut out some of the taboos. We don't need all of them. But we do need the rules; even if they can get a bit irritating at times."

"I see. Yes. I see . . ." The Director blinked a trifle dubiously at the screen. "I suppose I can understand why you felt you had to break loose for once . . . and K'k'riscor, too. Well, I'd better see what's happening to the party." He went.

Lawrence poured the last of the bottle into his tankard and waited for the frost to form. Then he checked carefully that vision and sound were off, and glanced at the door. It was firmly shut.

He lifted the tankard towards the screen.

"Here's to you, K'k'riscor; you egg-born bastard," he said affectionately; and drank deep. ■

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P. Schuyler Miller

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KOOK AND DAGGER

In fiction, on television, and in the films we are in the era of the cloak-and-dagger yarn. It is played reasonably straight, it is hammed up in the "007" manner, and it is blandly burlesqued. It is hardly surprising, then, that two publishers have suddenly discovered that science fiction has had its own subgenre of interplanetary and interstellar intrigue since 'way back when. Almost simultaneously, Doubleday has published a collection of Keith Laumer's "Retief" yarns from *If*, and Chilton has brought out two collections of Poul Anderson's Dominick Flandry stories from various magazines.

The nine stories about Jame Retief in "Galactic Diplomat" (Doubleday; 227 pp.; $3.95) follow those which were reprinted by Ace in 1963 in the paperback "Envoy to New Worlds." As you know if you've read any of them, they are broad and often slapstick comedies in which Retief, a junior officer in the Corps Diplomatique Terrestrienne (CDT), applies himself to undoing what his venal or fug-headed superiors are trying to do. Since Keith Laumer is an Air Force officer who once spent two years in the Foreign Service, he has first-hand experience with *Homo diplomaticus* in his native habitat, and is merciless in portraying him.

Broadly, these stories deal with the galaxy in the thirtieth century, following the collapse of a galactic welfare state centered on Earth. Terra is trying to regain her old status and power by whatever means come to hand, with considerable opposition from various nonhuman empire builders. In the nine stories, Retief brings a happy ending out of the most intricate tangles imaginable. You might say he is the "ugly Terran" of the CDT, bringing fame to his various superiors and success to Terra in spite of everything they can do to louse

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things up. My own favorites are not the yarns with assorted monsters, but the purely human problems in "Saline Solution," "Native Intelligence" and "Protest Note."

Dominick Flandry, on the other hand, is the James Bond of a far future in which mankind has been able to extend a Terran Empire across one corner of the galaxy. The Empire is falling apart, while Flandry, top agent for the Imperial navy, tries to delay the Long Night of barbarism. Four short, early adventures are collected in "Agent of the Terran Empire" (Chilton; 198 pp.; $3.95) and one, known here as "Hunters of the Sky Cave," was published as an Ace paperback "novel" as "We Claim These Stars!" "Flandry of Terra" (225 pp.; $3.95) has three longer novelettes, two of which have been published before as Ace paperbacks: "A Message in Secret" as "Mayday Orbit" and "The Plague of Masters" as "Earthman, Go Home." They're all worth rereading.

In Flandry's galaxy there are nonhuman opponents, notably the reptilian Merseians and their telepathic agent Aycharaych. His principal problems, though, are with the forgotten colonies that Terra has scattered among the stars and left to develop new races and new societies with no allegiance to Mother Earth. Flandry is a good deal tougher and smarter than James Bond, though he appreciates the niceties of life every bit as much. What he wins does not come to him by chance or enemy blundering, and the star-worlds where he adventures are every bit as real as Ian Fleming's "real" world of our time. Give me Flandry and you can have Retief.

THE BEST SF: 1964

By way of *Science Fiction Times*, the venerable but occasional newsmagazine of the science-fiction/fantasy field, and the bulletin of the newly organized Science Fiction Writers of America, come the results of the balloting for best SF performances of 1964. Analog was the London conventioneers' choice as best magazine of the year, and John Schoenherr earned the "Hugo" as best artist for his work here.

Fritz Leiber's "The Wanderer," an original paperback, was first choice as best novel of 1964, winning over Edgar Pangborn's "Davy" and John Brunner's "The Whole Man." Gordon Dickson's "Soldier, Ask Not" was rated best short fiction. "Dr. Strangelove" well deserved its Hugo as best dramatic work of the year. *Yandro*, one of the oldest consistently good fan magazines, published by Robert and Juanita Coulson, swept up its second or maybe third award, and Ballantine got the relatively new award for "best publisher" of the year.

These "Hugo" awards, named for Hugo Gernsback, are given by

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the science-fiction and fantasy fans attending the annual conventions—next: Labor Day weekend in Cleveland, Ohio. In 1966, a new series of professionally awarded citations will be made by the new Science Fiction Writers of America. These will be comparable to the highly prized "Edgars" of the Mystery Writers of America. And for good measure, the SFWA will edit an annual anthology of the best science fiction—no fantasy—made up of the winners plus other outstanding stories. Happy 1966!

THE STAR FOX

By Poul Anderson • Doubleday & Co., Garden City, N. Y. • 1965 • 274 pp. • $4.50

This book appeared in three sections, as separate novelettes in *Fantasy & Science Fiction,* early this year. Surprisingly, for an Anderson story, the joints show. It's still a swinging action story of the kind the author always does well, and better than most; it just isn't up to his own standards.

Parts I and III of the chronicle are best. In Part I, "Marque and Reprisal," space veteran and industrialist Gunnar Helm sees the World Federation about to abandon one of its frontier planets and half a million French colonists to the powerful, nonhuman Aleriona, who have decided to sweep Mankind out of Space and make the galaxy safe for the Alerian way of life. When logic fails, Gunnar Helm turns to more forceful means—necessarily so when militant pacifists kidnap his daughter as a hostage. And as a last resort, France commissions him a privateer, to rove Space at his own expense and prey on Alerian commerce and warcraft.

In Part II, "Arsenal Port," Gunnar is outfitting his ship on the arsenal world of the Staurni—a planet with a hydrogen atmosphere, where men must live in spacesuits. By itself, this part of the book would be a lively action story. Betrayed by the pacifists, Gunnar and a small party of friends and adversaries have to fight their way through the perils of the high-gravity world without ever leaving their suits. It is a classic obstacle-course yarn, handsomely developed, with ingenious applications of Staurn's built-in hazards, but as far as the book is concerned it is a scenic detour on Gunnar Helm's bumpy road to New Europe.

Part III, "Admiralty," finds him there and in contact with the refugees. The main thread of the plot gathers its legs under it (what a mangled metaphor!) and takes off—nor does it slow down for one moment, as Helm and his crew take on one menace after another in his private war against Alerion.

There are all kinds of details and people to relish in the book, notably Endre Vadasz, the Hungarian minstrel who can draw on the ballads of scores of worlds. All through the

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book, through Endre's music, Poul Anderson shows you how important minstrels were in the quieter, more personal days of war and love and friendship. And Cynbe ru Taren, Intellect Master of the Alerian Garden of War and Gunnar's chief adversary, is another strong and subtle character whose real nature turns out to be the secret of his race and the key to his defeat.

Nobody does this kind of story quite as well as Poul Anderson, but in that middle third I'd have liked to see Gunnar coping with what must have been a fascinatingly complex Staurni psychology and society, instead of fighting roving trees and bloodthirsty war machines. Oh well—nobody's perfect.

THE WORLDS OF ROBERT F. YOUNG

Simon and Schuster, New York • 1965 • 224 pp • $4.50

Although only two of the sixteen stories in this collection were originally published in the *Saturday Evening Post*, and all the others were in "respectable" science fiction/fantasy magazines—mostly *Fantasy and Science Fiction*—Robert Young is preeminently the slick, colorful, professional mass-circulation magazine SF writer. The gimmicks and points of view that are the whole meat of many of his stories lost their novelty twenty or thirty years ago. The border between science-fiction and fantasy is also pretty vague, and apparently really doesn't matter to the author, or to the readers for whom he is writing.

That said, there are still some very good stories here. My favorite, from the *Post*, totally obvious, purely sentimental, is the delightful "The Dandelion Girl," whose principal novelty is the idea that a girl can travel in time. The tale that produces the jacket illustration—and the artist's work is intended literally—is right up there in the Pohl class. It's "Romance in a Twenty-First Century Used-Car Lot." "Little Red Schoolhouse" is bitter Pohl; "The Stars Are Calling, Mr. Keats" is almost-documentary realistic psychology; "Written In the Stars" is slapstick; so is "Production Problem." "Promised Planet" is human irony.

I'm tempted to quote someone's comment about my reviews: "He likes them, but not very much." Only I do like some of these stories very much. They grow on you, all the while you're insisting that a "real" SF writer could do it so much better.

MASTERS OF SCIENCE FICTION

Belmont Books, New York • No. 92-606 • 1964 • 157 pp. • 50¢

This anthology is a rarity and a puzzle. A rarity, because it contains seven generally good stories which have never been in a paperback before. A puzzle, because no editor is given, and there are no

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prior publication credits. It is even possible that they originally appeared under pseudonyms, with different titles; if so, my memory is not good enough to identify them.

Philip K. Dick's "Service Card" is a switch on the old one of a repairman from the future, who stops by to fix the hero's "swibble." Probing to find out what a swibble is, a bunch of would-be sharpers learn what kind of a world has swibbles.

M. C. Pease's "Path of Darkness" is a short variation of Arthur C. Clarke's "Fall of Moondust." Cracked up on Io, the hero finds himself surrounded by an ocean of fluid dust which he must cross to signal for help.

Eric Frank Russell's "Early Bird" and Lester del Rey's "Forgive Us Our Debts" are totally different treatments of the same theme. Scouts are exploring the galaxy, so that Mankind can be warned of the presence of rival civilizations among the stars. Russell's hero finds a strangely humanoid race; del Rey's finds himself back on Earth.

Poul Anderson's "Green Thumb" is another quietly underplayed story about Man confronted by intelligent aliens—or an intelligent-alien—with talents different from our technological bent.

The most ambitious story of the lot, though treated with humor and told with successful switches in point-of-view, is "The Day of Boomer Dukes." A bored young man from the future, with a romantic conception of the past, comes to our time to enlist as a volunteer in the Mafia and aid it in its heroic struggle against the Establishment. Instead, he and his arsenal of future weapons fall into the hands of two feuding Harlem gangs. It's one of Frederik Pohl's best.

Finally, Sam Merwin Jr. contributes "The Final Figure" as a reminder of just how well he can tell a story, as well as edit a magazine. It is a story about a Long Island model maker who is a kind of Lewis Padgett "Gallegher" without the DT's. The model weapons MacReedy makes anticipate those in the arsenals of West—and East.

It's a collection to recommend—no masterpieces, but science fiction at its varied and competent "high level of mediocrity."

THE WHOLE MAN

By John Brunner • Ballantine Books, New York • No. U2219 • 1964 • 188 pp. • 50¢

This is by far John Brunner's best book to date. It well deserved its nomination for the "Hugo" award as best novel of 1964.

Gerald Howson is a crippled child, raised in the London slums of the future—but he is one of the most powerful existing telepaths in a world where the U.N. is recognizing and using psionic abilities to help probe psychoses and quell po-

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litical and social insanity. The book is the story of a few of his "cases," in the course of which he realizes that his own outlook on life has become as warped as his body. But Howson the man is by no means Howson the warped child, and in the final section of the book he does find new facets of his own personality, and open new possibilities in psionics.

What is particularly good about the book is the richness with which John Brunner has developed the possibilities of telepathic communication. The concept of catapathic groupings, in which telepathic minds can wall themselves into a fantasy woven of their several dream worlds, is terrifyingly real. So is the rich interweaving of sensual and nonsensual—psionic—experience in the final portion of the book. Why it has not had a hardcover publication in this country, when so many poorer books do, I fail to understand.

NO LIMITS

Edited by Joseph W. Ferman • Ballantine Books, New York • No. U-2220 • 1964 • 192 pp. • 50¢

This is a very good anthology, selected from *Fantasy & Science Fiction* and, I think, from its defunct companion, *Venture*. Trouble is, you are practically certain to have read such stories as Avram Davidson's "Now Let Us Sleep," Algis Budrys' "And Then She Found Him," and Theodore Sturgeon's "The Comedian's Children" at least once before, in other anthologies if not in the magazines. Well. . . .

C. M. Kornbluth's "The Education of Tigress Macardle" is a satire of future parenthood as sharply double-edged as any he ever did.

Leigh Brackett's "All the Colors of the Rainbow" is a quiet little horror story of race relations in Pennsylvania that grows truer by the day.

Avram Davidson's "Now Let Us Sleep" is another gut-twister of the impersonal ruthlessness of science.

Walter M. Miller's "Vengeance for Nikolai" is a vignette of bacterial war.

Lester del Rey's "Seat of Judgment" is a powerful parable and parallel with its roots deep in the essence of present-day religion.

Isaac Asimov's "Buy Jupiter!" is the one real comedy—farce comedy—Asimov-in-SF-convention-mood comedy, too short to describe.

Algis Budrys' "And Then She Found Him. . ." is a quiet tragedy of psionics in a "normal" world.

Henry Slesar's "Before The Talent Dies" is one of that 'tec author's ruthless logical developments of a SF stereotype into something very new.

And Theodore Sturgeon's "The Comedian's Children" is an equally ruthless but more deeply probing exploration of the psychopathology of show-business.

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Dear Mr. Campbell:

Although you probably know this by now, I write this letter as a safety check.

Early this summer Ace Books published a novel, F-342, titled "Lord Kalvan of Otherwhen." This novel was written by H. Beam Piper. The novelette "Down Styphon" was the second of three parts of this novel. Therefore, your claim that this was his last story was wrong. The completion of his novel will undoubtedly be welcome to the readers who didn't get the book.

I thought you only printed new material.

SCOTT WYATT

R.R. 3,
Marshalltown, Iowa 50158

This situation merits explanation.

The mixup occurred due to two closely timed deaths, with resultant confusions. Analog bought "Down Styphon"—it was written for us, as a sequel to "Gunpowder God"—from H. Beam Piper, through Piper's agent Ken White. Unfortunately, Ken White died suddenly, leaving all his affairs in a chaotic mess. (It was this, in part, that put Piper in such a financial jam, and caused the acute depression that led to his suicide.) No one seems to have known just what the status of affairs at Ken White's office was, and for months manuscripts, letters, checks, and everything else were stalled on dead center.

Then Piper died.

Another "author's agent" took over responsibility for Piper's literary estate—but without adequate knowledge of the situation with respect to legal rights, et cetera, of many of Piper's stories.

Our agreement with Ken White was, as usual, that we would have first publication of "Down Styphon." The new agency, because of the chaos White's sudden and completely unexpected death caused, didn't know that, and sold book rights to Ace Books.

Result: a complete confusion of rights and stories for which no one can be blamed.

Dear Sir:

I find it is time to express my opinion of your fine reading material in each issue of Analog.

Not only do the stories command my attention for a few hours of relaxed retreat from the routine, but it has, surprisingly, quite a bit of science fact without which I would

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otherwise have been ignorant. Thank you, for giving me my money's worth.

I was especially delighted with your editorial "Panacea," since it strikes so close to home. You see, I am an Eskimo myself. Very few people realize the extent Education has on people like myself. Keep up the fine work.

C. A. Graeger

Authority on the subject!

Dear Mr. Campbell,

There is a certain lack of appreciation of human frailty evident in your editorials, particularly in that one appearing in the September, 1965, issue of Analog.

When making an estimate, reaching a decision, or constructing a theory, one can act only on the best evidence available at the time. Sure, scientific theories are merely guesses, but they generally represent the best possible guess in the light of current knowledge. The distribution of abundances of the elements on Earth represents merely the best evidence presently available on the cosmic abundance of the various elements. Sure it's biased. But it *is* a starting point!

It is only human to act on these best possible guesses as if they represented eternal absolute truth. After all, one cannot know that which has not yet been found out.

It is the essence of the scientific attitude, it seems to me, to be able to do experiments and base predictions on such theories while keeping in mind the fact that they *are* only educated guesses. One must be ready to alter or drop completely any theory in the light of new knowledge. People who disbelieved, or at least questioned, long-standing theories were responsible for the discovery of the rotation of Mercury and the demonstration of compounds of xenon. And such people are not as rare as you seem to imply. Over the past half-century there have been many reports of noble gas compounds, but none that were substantiated until recently. In addition, fluorine does have a tendency to be somewhat deadly and, as such, is rather difficult to work with. This tended to put a damper on efforts to construct a xenon fluoride compound.

Your comment on creatine—Krebiozen seems quite thought-provoking. I wonder if the FDA thinks so.

MARIE SWANSON

R.D. 3
Pine View Drive
Elizabeth, Pennsylvania 15037

1. I agree in full with your definition of the correct scientific attitude. Most professional scientists agree with you . . . verbally! My deep objection is that they don't DO what they SAY!

2. It wasn't "people who disbelieved or at least questioned" the theories that discovered Mercury rotated. It was radar astronomers, whose instruments specifically re-

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ported the data. They hadn't set out to check it; they were after something else entirely, and got those answers serendipitously.
3. Previous noble gas "compounds" had been reported—but they were known to be clathrates, not true compounds. A solid, crystalline substance forms when pentane and water are mixed and cooled below about 50°F. This isn't a compound; it's a clathrate. Similar water-argon clathrates had been reported.
4. Indications are that the FDA does not, and never will know, about the creatine-Krebiozen item.
"The only thing you can not learn is something you already know . . . or think you know!"

Dear Mr. Campbell:

I read your October editorial, "The Nature of Literature," with considerable interest. You posed the question: "Then how come most successful authors took degrees *not* in English Literature, but in some widely different field?" I believe that your inference that English Lit courses actually *inhibit* natural writing talents is correct: I have had occasion to talk to persons taking the composition courses associated with English Lit. In such courses, your writing is taken up, examined, and then analytically torn apart. You are held accountable for your choice of every word, type of phrasing and structure, etcetera; if you don't have legitimate reasons, you're in trouble! Just whether or not the "totalism" of grammar enters into these vivisections, however, I don't know.

One thing is for sure, though: such courses emphasize mechanical, rather than natural, methods of writing. And mechanical writing is generally an artificial all-planned nonintuitional affair which follows established rules and procedures exactly, but unfortunately is very poor as "literature" because the author has been forced to write in a manner which is not parallel with his personality-style.

As to why science-oriented English courses do not stilt the written personality as do English-oriented English courses (I'm referring specifically to science fiction, now), I can't say, since it transcends my experience. Perhaps another of your readers has the answer, however.

RON SHEETS

English Lit majors do come out great at criticizing. Then "Those who can, do; those who can't, teach!"

Dear Mr. Campbell:

This is to say thank you for your editorial anent "Literature," which I have just read. This, in better words than any of mine, is something I have been for years trying to tell anyone who would listen; that the only acid test of literature is its ability to survive; that the only real judges are posterity; and that so-called literary "experts" are merely

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swapping opinions among themselves.

I'd like to add a point or two, on characteristics of those "greats" who have survived the test. With no exceptions that I can recall offhand, those old-timers told stories, great stories. They went for plot, for things that happen in sequence, first one thing "and then" something else. As the King put it, in "Alice," they began at the beginning, went on until they came to the end, and then stopped. Trite, by today's standards, but things become trite by being true over and over again. Life is like this. Just one darned thing after another.

Also, and again without exception, they communicated talent, and they put it into the work. We remember them for what they did, not who they were. It's "Treasure Island" we think of, or the "Odyssey," or "Hamlet"—the work itself, rather than the personality of the man who wrote. True, we know a deal about Stevenson, because he wrote, also, about himself. But who knows anything about Homer? And what author has provoked more heated argument than Shakespeare, about his personal data? Wasn't it Mark Twain who said that those plays and poems weren't written by him at all, but by another man of the same name? And that puts it exactly right.

So much of what passes for literature today seems to be confined to the agonizings of the author's private ego, *his* struggle, *his* values, *his* viewpoint. It's a form of conceit that he believes the rest of the world will be interested and entertained by such pitifully limited horizons. The same kind of conceit is shared by the aforementioned critics, who are also deeply engrossed in their own personal reactions and feelings.

I doubt you'll get many arguments on this editorial, not from regular readers anyway. One of the reasons why certain people go for science fiction is because they look for stories, and heroes, and provocative ideas, and that kind of outlook just doesn't come from the person who is firmly glued inside his own skull, scared of the big world out there.

And the litterateurs aren't likely to read it, worse luck!

JOHN T. PHILLIFENT

Phillifent is just another story-telling engineer, of course—he didn't graduate in English Lit either.

Dear John:

Read your October editorial with much interest—particularly since I don't know quite how I fit into the scheme of things. You see, I graduated with a double major in chemistry and English. Since graduation, I've never worked a day in a chemistry lab. I've been employed as an engineering writer at General Dynamics, a technical editor at the Lawrence Radiation Laboratory, and now primarily as a science

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writer at the Los Alamos Scientific Laboratory. In between I've managed to free lance a few science articles. So basically I earn my income from writing in one form or another. And I think that English background was—and is—useful.

However, in the type of writing that I do, I would be less than truthful if I didn't indicate that I think a technical or scientific background is also essential. Which brings up another point. I don't know how you define literature, but I submit that a very small percentage of the writing published today is literature.

I'm not at all convinced either that the mere fact that a man carries the title of chemist, physicist, or engineer means that he is either qualified or successful at the task. Many of these people drawing salaries as engineers, et cetera, and hence making their living, are in reality nothing more than technicians or draftsmen drawing an absurd salary.

I've heard it argued by a number of successful writers that the only way one succeeds at writing is to write, write, and rewrite. It seems to me that by so doing they've gained a rather good understanding of the English language—or perhaps what editors consider good usage. If it is practice that makes perfect, then I think there is essentially no requirement that a successful writer have an English Lit background—although to argue that such a background is detrimental is simply not true. Now in our society today the same cannot be said for engineering or the sciences. To be successful in these fields one must literally have a background that is suitable for that task that he is doing. It seems to me that you've published some interesting arguments on this subject. The reason that a man doing chemical engineering must have a background in chemistry or engineering is because society demands it—the day of the self-taught genius is almost a thing of the past. This is not true in writing and I hope it never will be.

I think your presumption is false that persons studying English Lit are doing so only to become successful writers. Just as many with no English background become successful writers, so do many English majors become successful in other fields.

You argue that Shakespeare was one of the most commercial of writers. Agreed! Does the fact that I spent three semesters studying his work inhibit my writing? I don't think so.

'Nough said. I admit that there is considerable truth in what you say, but there are also a lot of Lit majors who do sell stories—and I suspect to editors such as yourself.

ED WALTERSCHEID

Practice does, indeed, seem necessary to achievement. But not if you practice the wrong methods!

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"It's Been a Long, Long Time . . ."
continued from page 7

first radio receiver I ever built depended on a semiconductor diode detector, back in 1923. I made my own, out of a piece of lead ore I'd picked up, a little solder, and a phonograph needle. (In those days, son, the phonograph needles weren't made of nonconducting sapphire and diamond. They were steel.)

The first battery-charger I built used solid-state electronics, too—a copper-oxide rectifier system.

For that matter, the first radio transmitter ever built was strictly solid-state equipment. Hertz carved his entirely out of brass and glass.

The thing is, the potentialities of the devices they *already had on hand* remained untapped, and unexploited, because the men *thought only in frequencies*. They thought—mathematically, and, therefore, in circuit design terms—that a square wave, an on-off pulse of current, *"was"* a terrific complex of sine and cosine frequency waves with an enormously complex formula, and, therefore, terribly hard to deal with.

Give an electronics engineer of 1940 the problem "I want a wave of energy that will rise from zero to 350 volts in half a microsecond or less, stay there for half a second, and return to zero in half a microsecond," and he'd start talking about frequencies, impedances, inductance of leads, distributed capacitances, and wind up with something using a 2,500 watt tube, running on about 2,000 volts, with equipment weighing about 600 pounds and occupying four cubic feet of space.

While any watchmaker could make up a simple clock-controlled switch that would do the job. Give a faster rise time, and more accurate control of peak voltage—would be simpler, too.

In other words, the electronic engineer, by thinking of the problem in the wrong terms, would have shoveled in half a ton of apparatus, several kilowatts of power, and a lot of extremely expensive equipment to do something a simple switch could do.

The frequency-analysis approach to electronics and electrical problems was an extremely useful tool . . . for some jobs. It was the wrong approach when considered as *the* way to handle problems—and it inhibited men from thinking of the things that they could do with then-available devices. The transistor was *not* necessary; a *change of pattern of thought was.*

Once the change came, the demand for new types of hardware rose—and, with solid-state gadgets also then current in research thinking, the demands were met by solid-state devices. They could have

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been met, in many if not all instances, by vacuum tube devices—or already known solid-state devices such as the galena crystal detector, the selenium rectifier, et cetera. Electron multiplier devices were never developed particularly, save for the photomultiplier—but they could have been. They're particularly adapted to pulse-handling. The old 931-A photomultiplier tube works nicely on 0.01 microsecond pulses—and it was designed before WWII*.

If you've got one of those little portable quarter-inch drill-speed control contraptions, you've got a gimmick that uses a SCR, a very modern solid-state device for switching the power on and off. But the SCR is driven by a pulse-generator that consists of a seed-sized neon glow lamp, a couple of resistors and condensers. The pulse-generating circuit, in other words, was something available about the end of WW*I!*

The solid-state gadgets are a lot smaller than the vacuum tubes they replace, of course. But . . . that doesn't mean that vacuum tubes *have* to be big! It just means that, at the time the pulse-thinking started, and new hardware was designed, the solid-state devices were all the rage, so lots of thinking went into making solid-state gadgets small.

For instance, General Electric makes all sorts of solid-state hardware, of course . . . but they also make some things they call TIMMs—Thermally Integrated Micro-Modules. They're true vacuum tubes, they're about the size of solid-state transistors, and they have numerous very definite advantages. Like the solid-state gadgets, they have an almost unlimited life; they don't have the usual filament or heater in each tube. Instead, the whole assemblage of TIMM tubes, condensers, resistors, diodes, et cetera, is built into an oven arrangement, and the whole module put in an oven run at a dull-red heat!

One of the massive problems with solid-state devices is their extreme sensitivity to heat. Silicon melts at a yellow-white heat—far above copper. Yet a silicon semiconductor device can't be safely operated much above the boiling point of water. Reason: The diffused-junction of n-type and p-type silicon was made by allowing something like aluminum to diffuse, by thermal activation, into silicon previously doped with something like arsenic. Heat the doped junction up too much, and the carefully controlled diffusion starts diffusing uncontrollably. Presto! No semiconductor device!

Also, all the semiconductor devices depend on rigorously con-

*For the electronic engineers—remember that an electron multiplier device is a zero impedance amplifier. The dynodes should be maintained at all times at pure DC potential. Electron multipliers then have a delay-time due to time-of-flight, but no pulse-form distortion.

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trolled, and controllably distributed holes and electrons. That's *fine, and everything's lovely . . . so* long as no hard radiaton comes along. Gamma rays zipping through silicon naturally blast electrons and holes into existence promiscuously and in quantity. Any transistor makes a wonderful radiation detector. And a transistorized computer goes completely out of its electronic mind when gamma rays or other nuclear radiation hits it. All its binary logic of off-on turns *on,* all-out and full-blast simultaneously. Nuclear radiation has an effect on solid-state devices comparable to that of the nerve-gases on animal organisms; all the nerves are turned *on* and can't turn off again.

The TIMM units are vacuum tubes—you can't punch holes in a vacuum.

I once tried setting up a transistor-amplifier system with a thermistor to control the temperature of a chemical bath I was working with. The last transistor was supposed to flip the relay turning on the heater when the temperature dropped.

My first breadboard setup caused me to start all over, using a little gas thyrotron instead of solid-state devices. Turned out the first transistor was more wildly sensitive to heat than the thermistor was.

The thyrotron system worked reliably and stably.

The TIMM system has to be kept in an insulated oven, and heated up to work. Yes . . . but unlike a comparable solid-state system, it doesn't have to be equipped with blowers, heat-sinks, refrigeration, and temperature equalizing equipment which, quite routinely, weighs more and takes more room than the entire electronic system itself! Any fairly sizable TIMM computer, for instance, would dissipate enough heat in the circuit elements—resistors, tubes, et cetera—to supply nearly all its needed heat. The tubes being tiny wafers made up of titanium discs with minute ceramic rings for insulation, a few hundred degrees centrigrade bothers them not in the slightest.

My essential point is not "See how wonderful TIMMs are!"—that's General Electric's business.

My point is that modern electronics did not stem from the development of solid-state devices. *It stemmed from a change of mental viewpoint.*

Newton would not have developed the idea of gravity, if his viewpoint had been that of Ptolemaic astronomy. The great realization Newton achieved was that the Moon was held in orbit by Earth's gravitational attraction. But obviously he couldn't have achieved such a realization if he didn't know it was in an orbit about Earth!

Practically everything solid-state devices do could have been done equally well by a development of

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the basic types of devices known before WWII. The solid-state devices have made possible low-voltage high-current devices that neither vacuum nor gas-discharge devices seem to be good at. However, no one now can say what could have been done by straightforward development of the then-known solid-state devices such as the copper-oxide rectifier.

If you don't look for something, it may fall off a cliff and slug you accidentally so that you notice it—but you're not *apt* to find it. And if your thinking is confined to frequency-is-everything analysis—you won't start exploring the possibilities of pulse-analysis, nor demand the different kind of devices pulse-analysis cries for.

Actually, animal hearing—including the human—is based on pulse analysis, rather than frequency analysis. Therefore high-fidelity music must be treated, in amplification, recording and reproducing equipment, as a pulse system, and *not* as a frequency system. It's quite possible to design and build a circuit that reproduces every frequency from 10 cycles to 25,000 per second, and yet can't reproduce music at all! But design and build a system that has a pulse rise-time characteristic of two microseconds . . . and you'll have music such as you've never heard outside the concert hall itself.

(Lincoln Center had to be rebuilt half a dozen times because, while the air in the room naturally handled all frequencies from ultra-low to megacycles, the *room* did not!)

It's completely impossible to say, of course, what areas of theory are, today, blocking our easily-available advance simply because we've picked the wrong way to analyze the phenomenon.

However, I have a strong suspicion that the nuclear physicists have got off on a Ptolemaic analysis of subnuclear structure.

I'm almost certain that our analysis of action-events in terms of "time" is inappropriate; the physicists have certainly been having a confusing problem in trying to work out the business of "time symmetry."

One of the things physicists cordially dislike about psionics results is the repeated instances of trans-temporal clairvoyance—instances of individuals "seeing" things that happened both elsewhere and elsewhen, with particular irritation at instances of precognition.

Perhaps the best expression of the underlying philosophical problem is the statement by Charles Robert Richet, Nobel Medalist in Medicine in 1913.

"I do not say it is possible. I merely say it is true."

"Possible" is a term related strictly to theory, and nothing but theory. "True" is a term related solely to the real universe. The

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mathematician who proves a theorem, then, can with perfect accuracy, say "I do not say it is true; I merely say I have proven it possible." Like the mathematical topologist who proved that a sphere could be cut up in certain ways, and the parts reassembled to make a completely solid sphere of twice the size. Mathematically, it is possible. In the real universe, it is untrue.

Conversely, the mathematicians proved that a bumblebee could not fly. They proved it was not possible; that proof was perfectly valid and correct. It had nothing to do with being true, however.

But so long as a theoretical structure—such as the dominant frequency concept—inhibits analysis along other lines of possibility, Man will not perceive the major developments perfectly available to him, with the devices he has on hand now.

In specific terms, it's quite conceivable that a technician from a passing interstellar liner, shipwrecked somehow on Earth, could go to the standard supply houses in any major city, purchase off-the-shelf equipment, and assemble a clumsy but workable anti-gravity unit, and position-displacer that would get him home in some fifty microseconds, once he was beyond Earth's atmosphere. We've got everything we need—but don't know how to use it. ■ The Editor.

THE MOON CHANGES HANDS

Before the first man reaches our twin planet, troubles and headaches of management have reached Earth from the Moon.

Who's in charge of land claims on the Moon?

As of now . . . Well, this is an item from OUR PUBLIC LANDS, Summer, 1965, Vol. 15, No. 1, a quarterly issued by the United States Department of the Interior, Bureau of Land Management:

Moon File Changes Hands. Mrs. Ruth G. Van Cleve recently claimed the moon—and got it! As Director of Interior's Office of Territories, she asserted in a humorous memo to BLM's Director Charles H. Stoddard, that jurisdiction over the moon, a "non-contiguous area" to the United States, rightfully belongs with the Office of Territories, not with BLM.

Stoddard acquiesced, and happily turned over the responsibility and BLM's "moon file" to her. The file contains 20 years of public requests for homesteads and other tracts on the moon. Standard reply has been, "Establish 6 months residence there and we'll talk business."

The action took place within days after two Tulsa University students filed a notarized claim to the Sea of Tranquility and some surrounding moonscape, documenting their claim with a photograph taken by Ranger 8 from 275 miles away.

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Watch Out For The Other Guy

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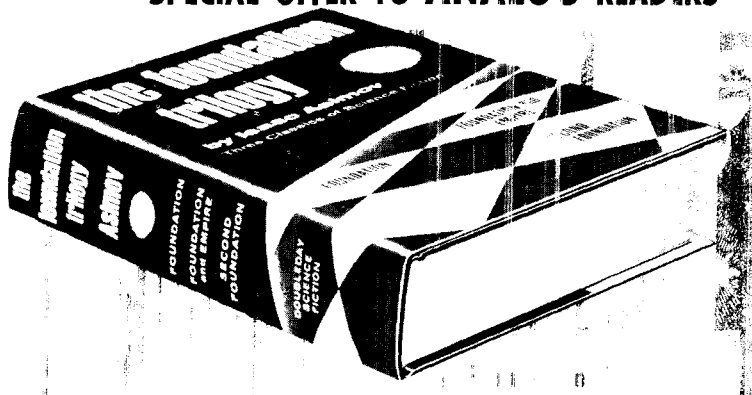

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y 12,067 it was clear that the massively corrupt Galactic Empire was near total collapse. Its myriad worlds had already begun to war among themselves, plunging the universe into barbaric chaos. Civilization seemed doomed.

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